

EXHIBIT 3

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**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA**

ANIBAL RODRIGUEZ, SAL CATALDO,
JULIAN SANTIAGO, and SUSAN LYNN
HARVEY, individually and on behalf of all
other similarly situated,

Plaintiffs

v.

GOOGLE LLC,

Defendant.

No. 3:20-cv-04688-RS

REBUTTAL EXPERT REPORT OF CHRISTOPHER R. KNITTEL, PH.D.

May 31, 2023

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I. INTRODUCTION

A. Qualifications

1. My name is Christopher Knittel. I am the George P. Shultz Professor of Energy Economics and Professor of Applied Economics in the Sloan School of Management at the Massachusetts Institute of Technology (“MIT”). I received a Ph.D. in economics from the University of California, Berkeley in 1999 where my fields of specialization were industrial organization and econometrics. In 1996, I received a Master of Arts in economics from the University of California, Davis. In 1994, I received a Bachelor of Arts, summa cum laude, in Economics and Political Science, from the California State University, Stanislaus.

2. I am the Director of MIT’s Center for Energy and Environmental Policy Research (“CEEPR”). CEEPR was formed in the 1970s and is the hub for social science work on energy and the environment at MIT. I am also the Deputy Director for Policy of the MIT Energy Initiative, which serves as MIT’s hub for energy research, education, and outreach.

3. I am a Research Associate at the National Bureau of Economic Research in the Industrial Organization, Productivity, and Environment and Energy Economics programs. I co-direct the Environmental and Energy Economics program within the NBER. I am also an Associate Editor of the *Journal of Transportation Economics and Policy*. I was previously the co-editor of the *Journal of Public Economics* and Associate Editor of the *Journal of Energy Markets*, the *American Economic Journal: Economic Policy*, and the *Journal of Industrial Economics*. I have also sat on the outside review committee for the National Science Foundation’s Social and Economic Science grant program.

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4. My research focuses on how consumers, firms, and policy makers interact in the marketplace; this is known as industrial organization. I have authored numerous articles on topics related to consumer and firm behavior in various markets. These articles have appeared in many leading academic journals, including *American Economic Review*, *Journal of Political Economy*, *Review of Economics and Statistics*, *American Economic Journal: Economic Policy*, *Energy Economics*, *Journal of Industrial Economics*, *the RAND Journal of Economics*, *the Journal of Banking and Finance*, and *Management Science*.

5. A copy of my complete *curriculum vitae* is attached as **Appendix A**, which includes all trial or deposition testimony I have given in the last four years.

B. Assignment

6. I have been retained by Willkie Farr & Gallagher LLP (“counsel”) on behalf of Google, LLC (“Google” or “Defendant”) in connection with the matter of *Anibal Rodriguez, et al. v. Google LLC*, pending in the United States District Court for the Northern District of California.¹ I have been asked to review the expert report of Michael J. Lasinski, who has submitted an expert report on behalf of Anibal Rodriguez, Sal Cataldo, Julian Santiago, and Susan Lynn Harvey (collectively, “Plaintiffs”), and to provide my expert opinion as to Mr. Lasinski’s methodologies to calculate class-wide damages in this matter and his damages estimates themselves.²

¹ *Anibal Rodriguez, Sal Cataldo, Julian Santiago, and Susan Lynn Harvey, individually and on behalf of all other similarly situated, v. Google, LLC*, Fourth Amended Complaint, 3:20-cv-04688-RS, January 4, 2023 (“Complaint”).

² See Expert Report of Michael J. Lasinski, February 20, 2023 (“Lasinski Report”). My decision not to respond specifically to any of Plaintiffs’ experts’ opinions in this report should not be construed as an endorsement of that opinion.

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C. Report Preparation

7. My billing rate for time spent on this matter is \$950 per hour. In addition, I receive compensation based on the professional fees of Analysis Group, Inc., an economic and litigation consulting firm whose employees have provided research support under my direction and supervision. Neither my compensation nor that of Analysis Group is in any way contingent on the nature of my opinions or the outcome of this litigation.

8. In forming my opinions, I have reviewed materials, data, and information provided to me by counsel or obtained from public sources. These materials include, among others, the Fourth Amended Complaint, the Lasinski Report, the documents Mr. Lasinski lists or cites in his report, certain documents the parties produced in the case, deposition testimony of various Google employees and named Plaintiffs, and various data and publications from publicly available sources. The facts and data that I have considered in forming my opinions are identified in this report, the accompanying exhibits, and/or **Appendix B**.

9. I understand that discovery in this matter is ongoing. I reserve the right to adjust or supplement my opinions as appropriate and permitted by the Court should additional relevant documents or data become available.

II. SUMMARY OF OPINIONS

10. Based on my professional experience, scholarly research, and review and analysis of the data and documents in this matter to date, I have reached the following opinions. A full description of my opinions is contained throughout this report, including the accompanying exhibits.

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- a. Mr. Lasinski's estimates of disgorgement of profit and "actual" damages include many putative class members who could not have been affected by the alleged wrongful conduct (*i.e.*, Google's alleged tracking of certain users' app-activity data without the users' consent) because he fails to exclude users that did not allow Google to know their sWAA on/off status. Notably, this includes all users of iOS 14 or later.
- b. The testimony of named Plaintiffs is inconsistent with Mr. Lasinski's methodology to calculate class-wide damages.
- c. Mr. Lasinski's disgorgement of profit damages analysis assumes unrealistic and unnecessarily restrictive but-for worlds that lead him to overstate damages. Mr. Lasinski fails to consider alternative, plausible, and more realistic but-for worlds.
 - i. Mr. Lasinski ignores the change in demand and revenue that Google would have experienced in a but-for world with alternative disclosures on how turning sWAA off does not opt the user out of conversion measurement in third-party apps.
 - ii. Mr. Lasinski ignores that third parties could continue to provide conversion measurement services in the but-for world.
- d. Mr. Lasinski's methodology for calculating disgorgement of profit damages rests on unreliable assumptions, and as a result Mr. Lasinski overstates damages.
 - i. Mr. Lasinski incorrectly assumes that all putative class members suffered harm in equal manner. He fails to account for lower account activity—and, consequently, lower revenue—associated with accounts that turned sWAA off.

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- ii. Mr. Lasinski incorrectly assumes that Google earns revenue from conversion measurement (*i.e.*, measuring users' interactions with advertisements in third-party apps), and provides an unsupported estimate of revenue attributable to Google's use of sWAA-off data for conversion measurement.
- iii. Mr. Lasinski incorrectly calculates Google's revenue purportedly attributable to signed-in, sWAA-off users.
- iv. Mr. Lasinski fails to deduct all relevant costs associated with the advertising product areas that he considers for disgorgement of profit damages.
- v. Correcting certain flaws in Mr. Lasinski's methodology would substantially reduce his disgorgement of profit damages estimates, from [REDACTED] to [REDACTED] for his Scenario 1 [REDACTED]
[REDACTED] and [REDACTED] to [REDACTED] for his Scenario 2 (a reduction of [REDACTED]).³

e. Mr. Lasinski's methodology for calculating "actual" damages is unreliable and would overstate any class-wide damages.

- i. Mr. Lasinski's methodology fails to measure actual harm that would arise from the alleged wrongful conduct.
- ii. Mr. Lasinski fails to consider the value of private data as implied by other data transactions in which putative class members may have engaged.

³ [REDACTED]

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- iii. Mr. Lasinski fails to exclude users associated with no traffic or revenue.
- iv. Mr. Lasinski presents no economic basis for his “actual” damages estimate of \$3 per device per putative class member.
- v. Mr. Lasinski’s examples of users’ willingness to pay to prevent data collection and research organizations’ payments for data collection do not measure the value of the data at issue in this matter and are disconnected from any case-specific facts.
- vi. Mr. Lasinski fails to provide sufficient foundation or economic analysis for his estimate of the size of the putative class.

f. Mr. Lasinski’s methodology for apportioning damages is unreliable.

- i. Mr. Lasinski’s apportionment methodology is inconsistent with his own methodology to calculate damages. Mr. Lasinski proposes apportioning damages commensurate with the number of months during which an account was in sWAA-off status, whereas his damages methodology completely ignores this duration measure.
- ii. Mr. Lasinski’s methodology to apportion disgorgement of profit damages and “actual” damages ignores heterogeneity among putative class members with respect to the volume and quality of data at issue purportedly received by Google.
- iii. Mr. Lasinski provides no methodology to attribute his measured “sWAA Off User Months” to each putative class member.

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III. SUMMARY OF ALLEGATIONS

11. Plaintiffs allege that Google “collects and saves users’ app-activity data” and does so “without notice or consent, where Plaintiffs had turned off a Google feature called ‘Web & App Activity’ (‘WAA’) or a sub-setting within WAA known as ‘supplemental Web & App Activity’ (‘sWAA’).”⁴ Plaintiffs claim that “Google repeatedly and falsely represented that its users [...] could prevent Google from intercepting their communications by turning off WAA and/or sWAA.”⁵ Plaintiffs claim that users relying on these representations “had the objectively reasonable belief that Google would stop collecting their communications and other interactions with apps on their phones – ‘across [Google’s] services’ – if the users turned the WAA and/or sWAA switch to ‘off.’”⁶

12. According to Plaintiffs, “[i]n or before 2015, Google launched the ‘Web & App Activity’ feature” for Google accounts, which users can access “through Google’s website, and through the ‘Settings’ menu of a mobile device running Android OS.”⁷ The WAA feature can be toggled on and off and is displayed above the following text: “[S]aves [to a user’s Google account] your activity on Google sites and apps, including associated info like location, to give you faster searches, better recommendations, and more personalized experiences in Maps, Search, and other Google services.”⁸ Below the WAA toggle, there is a separate checkbox, referred to as the sWAA feature, providing the option to “[i]nclude Chrome history and activity from sites, apps,

⁴ Complaint, ¶¶ 1, 4.

⁵ Complaint, ¶ 210.

⁶ Complaint, ¶ 96.

⁷ Complaint, ¶¶ 74–75.

⁸ Complaint, “Screen 2” image at p. 22. Google’s disclosures to users specified that searches and activity from Google services would be “saved in your Google Account, so you may get more personalized experiences.” See “See & control your Web & App Activity,” Google Search Help, March 7, 2020, available at <https://web.archive.org/web/20200307144113/https://support.google.com/websearch/answer/54068?hl=en&co=GENIE.Platform%3DAndroid> (accessed using the Wayback Machine).

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and devices that use Google services.”⁹ For sWAA to be turned on, WAA must also be on, but a user can turn WAA on and have sWAA either on or off.¹⁰ That is, users must share their Google site and app activity (*i.e.*, turn WAA on) to share their Chrome activity, but users may opt not to share their Chrome activity if they share their Google site and app activity (*i.e.*, turn WAA on and sWAA off). At issue in this case are “app activity data” that Google allegedly collected “while WAA is turned off, including personal browsing data,” despite Google’s alleged promise “that by turning off this feature, users would stop Google from saving their web and app activity data, including their app-browsing histories” to their Google account for providing personalized experiences.¹¹

13. Specifically, Plaintiffs claim that Google collects and saves such data through the following Google products:¹²

- a. **Firebase Software Development Kit (“SDK”):** Firebase is “an app development platform” “[b]jacked by Google” that offers software development kits (“SDKs”) for third-party developers to develop apps across many platforms, including the Android and iOS operating systems and web.¹³ The Firebase SDK can be integrated and used with other Google products such as the Google Play store, Google’s web analytics platform Google Analytics, Google’s advertising platform for mobile apps AdMob, and Google Cloud.¹⁴ Plaintiffs allege that “Google intercepts and copies [communications between users and third-party apps] using

⁹ Complaint, ¶ 78.

¹⁰ Complaint, ¶ 78.

¹¹ Complaint, ¶¶ 1, 8.

¹² In addition to the Google products summarized here, Plaintiffs also mention the “Google Analytics Services SDK” and the “Google Ads SDK (formerly known as AdWords SDK or AWCT SDK)” (Complaint, ¶ 4) and “WebView” (Complaint, ¶ 68). The Lasinski Report does not reference these three products.

¹³ “Firebase,” Firebase, available at <https://firebase.google.com/>. See also Complaint, ¶¶ 39, 47.

¹⁴ “Firebase,” Firebase, available at <https://firebase.google.com/>. See also Complaint, ¶ 41.

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the Firebase SDK scripts, even when the user has exercised their privacy controls by turning WAA and/or sWAA off.”¹⁵ These communications include the user “viewing content, creating new content, or sharing content,” and the data allegedly collected include information “such as the mobile app page being requested and the device from which the request is being made.”¹⁶

- b. **AdMob+ SDK:** Plaintiffs also allege that “one additional tracking and advertising code that Google uses to collect and save information about users’ app-activity data – regardless of whether WAA or sWAA is switched off – is Google’s AdMob+ SDK.”¹⁷ Plaintiffs describe the AdMob+ SDK as “an upgraded version of Google’s AdMob product that allows Google to collect and save the same user app -activity [sic] data even with respect to apps that do *not* use the Firebase SDK.”¹⁸
- c. **Google Mobile Ads SDK:** Plaintiffs claim that “[b]y way of the Google Mobile Ads SDK, Google collects and saves data entirely separate from the data that Google collects and saves by way of Google’s Firebase SDK scripts.”¹⁹ Specifically, these data include “information about ad impressions – when an app displays an ad to a user” and “ad clicks, meaning information about when a user clicks on a particular ad.”²⁰ Plaintiffs allege that “Google collects this app-activity

¹⁵ Complaint, ¶ 48.

¹⁶ Complaint, ¶¶ 49–50.

¹⁷ Complaint, ¶ 60.

¹⁸ Complaint, ¶ 63.

¹⁹ Complaint, ¶ 64.

²⁰ Complaint, ¶ 66.

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information from the user and her device and uses it to serve advertisements to the user notwithstanding whether the user has switched off WAA and/or sWAA.”²¹

14. Plaintiffs allege that Google “includes in its user profiles data secretly transmitted to Google from consumer devices by Google tracking and advertising code during times that the user had switched off WAA and/or sWAA,” and that Google uses these data “to more effectively target advertisements to these users.”²²

15. Plaintiffs bring these allegations on their own behalf and on behalf of two proposed classes. Class 1 consists of “[a]ll individuals who during the [proposed] Class Period (a) turned off ‘Web & App Activity,’ or supplemental ‘Web & App Activity,’ and (b) whose mobile app activity was still transmitted to Google, from (c) a mobile device running the Android operating system (OS), because of the Firebase SDK and/or AdMob SDKs, on a non-Google branded mobile app.”²³ Class 2 consists of all individuals who meet all other criteria for Class 1 but whose data was transmitted from “(c) a mobile device running a *non*-Android operating system (OS).”²⁴ Plaintiffs’ proposed class period is defined as beginning “on the date Google first received data, as a result of Firebase SDK and/or AdMob SDKs scripts, from the device of a user who had turned off (or paused) WAA and/or sWAA” and continuing “through the present.”²⁵

16. Plaintiffs allege that “[d]espite Google’s false representations to the contrary, Google effectively charged Plaintiffs, [putative] Class members, and other consumers and Google was unjustly enriched, by acquiring their sensitive and valuable personal information

²¹ Complaint, ¶ 67.

²² Complaint, ¶ 143.

²³ Complaint, ¶ 249.

²⁴ Complaint, ¶ 249.

²⁵ Complaint, ¶ 249.

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without permission and using it for Google's own financial benefit, including to advance its advertising business.”²⁶ Plaintiffs claim that Google “effectively charged” them and other putative class members by using their data for free. In particular, Plaintiffs argue that “Google's ill-gotten gains include, but are not limited to, profit earned from: serving advertisements to WAA-off users, measuring advertisements' effect on WAA-off users' behavior, and developing and refining Google products using data saved from WAA-off users.”²⁷ Based on these claims, Plaintiffs argue that “Plaintiffs and the [putative] Class members [...] are entitled to reasonable compensation including but not limited to disgorgement of profit related to the [allegedly] unlawful internet tracking.”²⁸

17. Further, Plaintiffs allege that “Plaintiffs and [putative] Class members have been damaged by Google's invasion of their privacy and are entitled to just compensation and injunctive relief.”²⁹ Specifically, Plaintiffs argue that “[putative] Class members [...] assign value to keeping their data *private*,” which “is destroyed when the Firebase SDK scripts and other Google tracking and advertising code surreptitiously transmit users' data to Google while the users have turned off WAA and/or sWAA.”³⁰

IV. BACKGROUND

18. In this section, I provide an overview of certain aspects of the AdTech economy that underlie my discussion of Mr. Lasinski's proposed methodology to calculate class-wide damages in this matter.

²⁶ Complaint, ¶ 264.

²⁷ Complaint, ¶ 267.

²⁸ Complaint, ¶ 301.

²⁹ Complaint, ¶ 289.

³⁰ Complaint, ¶ 179.

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A. Overview of the AdTech Economy

19. AdTech, short for “advertising technology,” is the name given to a set of technologies that connect advertisers looking to promote their goods or services with apps or websites that have space to display these advertisements.³¹ This ecosystem comprises several entities that include the buy-side, the sell-side, and intermediaries known as ad exchanges. The buy-side of the AdTech economy encompasses advertisers and agencies that want to purchase ad space within apps or websites to promote their products or services. They often work with Demand-Side Platforms (“DSPs”), which are used by advertisers to manage and purchase digital ad inventory from multiple ad exchanges through one interface. On the opposite end, the sell-side represents publishers or app developers who have ad inventory—spaces within their apps or websites where ads can be displayed—to sell. They often work with Supply-Side Platforms (“SSPs”), which enable publishers to manage, sell and optimize available ad inventory in an automated and efficient way.³² An ad exchange is a digital marketplace where advertisers on the buy-side and publishers on the sell-side meet.³³ The ad exchange acts as the intermediary to facilitate transactions between members of those two groups.³⁴

20. Transactions in these digital marketplaces are generally conducted via auctions, which can incorporate real-time bids from advertisers for each impression.³⁵ These transactions involve identifying the highest bid among advertisers for each available impression on each

³¹ See, e.g., “What is adtech and why is it important?,” Amazon Ads, available at <https://advertising.amazon.com/library/guides/what-is-adtech>.

³² See, e.g., “DSP, SSP, and Ad Exchange: What is the Difference?,” AARKI, available at <https://www.aarki.com/insights/dsp-ssp-and-ad-exchange-what-is-the-difference>.

³³ “The DoubleClick Ad Exchange,” Google, available at <https://static.googleusercontent.com/media/www.google.com/en//adexchange/AdExchangeOverview.pdf>.

³⁴ See, e.g., “DSP, SSP, and Ad Exchange: What is the Difference?,” AARKI, available at <https://www.aarki.com/insights/dsp-ssp-and-ad-exchange-what-is-the-difference>.

³⁵ See Section IV.C.

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publisher's property for each user on that property. The use of technology and data to automate, optimize and measure ad buying and placement processes, known as programmatic advertising, has improved the scale and efficiency with which transactions take place.³⁶ AdTech has also led to advancements in user targeting, measuring audience behavior, and measuring ad effectiveness, which have increased ad placement alternatives for advertisers beyond the traditional offline world, while simultaneously allowing publishers to better monetize their online content through the sale of user-specific ad space to advertisers who value it the most.³⁷

21. AdTech providers include social media platforms such as Meta, TikTok, LinkedIn, Snap, and Twitter; major retailers such as Amazon and Walmart; digital print platforms such as Washington Post; search platforms such as Google and Bing; online video platforms such as YouTube and Twitch; telecom providers such as AT&T and Verizon; and connected TV platforms such as Hulu and Roku, to name a few. A vast array of intermediaries support transactions, including ad exchanges, networks, sell-side platforms, demand-side platforms and many others. These services have improved efficiency in AdTech, yielding greater volumes of transactions that benefit advertisers and publishers, with increased ad targeting capabilities.³⁸

B. Overview of Relevant Google Advertising Services

22. Google provides a number of products and services that are relevant to Mr. Lasinski's proposed methodology to quantify disgorgement of profit.

³⁶ See "What is Programmatic Advertising and How Does It Work?," Publift, February 3, 2023, available at <https://www.publift.com/adtech/what-is-programmatic-advertising>.

³⁷ See, e.g., "What is adtech and why is it important?," Amazon Ads, available at <https://advertising.amazon.com/library/guides/what-is-adtech>.

³⁸ See, e.g., "What is adtech and why is it important?," Amazon Ads, available at <https://advertising.amazon.com/library/guides/what-is-adtech>.

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- a. The **Google Search Network** is an ad network that consists of “a group of search-related websites and apps” that provides advertisers with access to ad inventory on Google Search sites and apps, and on Google search partner sites and apps. Advertisers target their ads on the Google Search Network based on keywords. Likewise, the Google Search Network enables Google Search sites and apps, and Google search partner sites and apps to monetize search results.³⁹
- b. **Google Play** is “an online store where people go to find [...] apps, games, movies, TV shows, books, and more.”⁴⁰ Google Play is Google’s pre-installed app store on Android-certified devices and ChromeOS.⁴¹ Developers and other advertisers can use Google Ads to promote their apps on Google Play in “Google Play search results[,] Google Play related apps section: ‘You might also like’ and ‘Related to this app’ [, and] Google Play homepage: ‘Suggested for you.’”⁴²
- c. The **Google Display Network** (“GDN”) is an ad network, accessible to advertisers through Google Ads, including Google-owned properties Gmail, YouTube and Google Finance.⁴³ As opposed to text-based search ads, Google’s

³⁹ “About the Google Search Network,” Google Ads Help, available at <https://support.google.com/google-ads/answer/1722047>. Ads can appear on Google Search sites (“Ads can appear above or below search results on Google Search. They can appear beside, above, or below search results on Google Play, the Shopping tab, Google Images, Google Maps, and the Maps app.”) or on Google search partner sites (“Ads might appear near or after search results of Google search partners or as part of a related search. Search partners include hundreds of non-Google websites as well as YouTube and other Google sites.”).

⁴⁰ “How Google Play works,” Google Play, available at <https://play.google.com/about/howplayworks/>.

⁴¹ “Find the Google Play Store app,” Google Play Help, available at <https://support.google.com/googleplay/answer/190860?hl=en>; “Install and use Android apps on your Chromebook,” Google Play Help, available at <https://support.google.com/googleplay/answer/7021273?hl=en>.

⁴² “About App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6247380?hl=en>.

⁴³ “Reach a larger or new audience with Google Display Network targeting,” Google Ads, available at https://ads.google.com/intl/en_id/home/resources/reach-larger-new-audiences/; “Google Display Network and YouTube on computers, mobile devices, and tablets,” Google Ads Help, available at <https://support.google.com/google-ads/answer/2740623?hl=en>.

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Display Network is designed for ads that are typically image based, such as banner and other image-based ads, native ads and social ads.⁴⁴ Advertisers typically use the Google Display Network to target ads according to customer interests and audience demographics.⁴⁵

- d. The **Google AdMob** network enables advertisers to access advertising inventory in mobile apps and enables mobile app developers to generate revenue by delivering in-app targeted advertising to their mobile app users on both Android and iOS platforms.⁴⁶ In addition to the advertisers aggregated by the AdMob ad network, AdMob also facilitates access to third-party (non-Google) ad networks.⁴⁷
- e. As Mr. Lasinski states in his report, app marketers can advertise in mobile apps using **Google App campaigns**, also known internally within Google as App Promo.⁴⁸ There are three distinct campaign types, each with its own set of conversions to monitor.⁴⁹ App Install Campaigns prioritize measuring app installs resulting from an app's ads. Since downloading an app doesn't guarantee usage, measuring first opens is a primary metric for app install campaigns, advertisers can measure this by measuring CPI, or cost-per-install. App Engagement

⁴⁴ “FAQ,” Google Ads, available at https://ads.google.com/intl/en_id/home/faq/; “About Display ads and the Google Display Network,” Google Ads Help, available at <https://support.google.com/google-ads/answer/2404190?hl=en>.

⁴⁵ “Reach a larger or new audience with Google Display Network targeting,” Google Ads, available at https://ads.google.com/intl/en_id/home/resources/reach-larger-new-audiences/.

⁴⁶ “What is AdMob,” Google AdMob, available at <https://admob.google.com/home/resources/what-is-admob/>; “Compare Ad Manager, AdSense, and AdMob,” Google Ad Manager Help, available at <https://support.google.com/admanager/answer/9234653?hl=en>; “Get started with AdMob in your iOS project,” Firebase, available at <https://firebase.google.com/docs/admob/ios/quick-start>.

⁴⁷ “Compare Ad Manager, AdSense, and AdMob,” Google Ad Manager Help, available at <https://support.google.com/admanager/answer/9234653?hl=en>.

⁴⁸ Lasinski Report, ¶ 32.

⁴⁹ “About App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6247380?hl=en>. See also “Simple guide to conversion tracking for Google App Campaigns,” App Radar, available at <https://appradar.com/academy/google-app-campaign/conversion-tracking>.

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Campaigns concentrate on the in-app actions of a firm's existing users. Various in-app action goals exist, such as event promotion or reactivating app usage. The primary metric for engagement campaigns is CPA, or cost-per-action. App Campaigns for Pre-registration leverage Google's pre-registration feature, promoting app awareness before it becomes available on the Google Play store. The primary metric for such campaigns is CPPRE, or cost-per-pre-registration. This campaign type requires an app to be available for pre-registration and is applicable only for Android apps.⁵⁰

C. Automated Bidding in Google's Digital Advertising Platforms

23. Automated bidding is a method of buying and selling digital advertising space in an ad exchange. The main providers of ad exchanges in the U.S. include Google, Meta, Amazon, Adobe, and PubMatic.⁵¹ In 2021, Google accounted for 27.9 percent of U.S. digital advertising revenue, followed by Meta with 22.8 percent, and Amazon with 10.9 percent.⁵²

24. Advertisers typically bid for ad space by contacting a programmatic advertising agency to assist them.⁵³ The agency then uses a DSP to automate the process of purchasing ad

⁵⁰ “About App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6247380?hl=en>. *See also* “Simple guide to conversion tracking for Google App Campaigns,” App Radar, available at <https://appradar.com/academy/google-app-campaign/conversion-tracking>.

⁵¹ “Share of ad-selling companies in the total digital advertising revenue in the United States from 2020 to 2025,” Statista, May 2023, available at <https://www.statista.com/statistics/242549/digital-ad-market-share-of-major-ad-selling-companies-in-the-us-by-revenue/>; “Real Time Bidding Market,” Markets and Markets, March 2019, available at <https://www.marketsandmarkets.com/Market-Reports/real-time-bidding-market-4630735.html>.

⁵² “Share of ad-selling companies in the total digital advertising revenue in the United States from 2020 to 2025,” Statista, May 2023, available at <https://www.statista.com/statistics/242549/digital-ad-market-share-of-major-ad-selling-companies-in-the-us-by-revenue/>.

⁵³ *See, e.g.*, “Partner with a creative agency to maximize your ad’s impact,” Google Ads, available at <https://ads.google.com/home/resources/advanced/agency-directory/>.

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impressions according to the targeted outreach of the advertiser. The DSP allows the agency to purchase ad inventory from multiple publishers.⁵⁴

25. From the publisher's perspective, when a targeted participant lands on the publisher's website or application, the publisher uses an SSP to sell the advertising space or advertising impression⁵⁵ to several buyers connected to the SSP. The DSP evaluates the advertising space and determines if it matches the target parameters of the advertiser before formulating a bid price in an auction. When an impression is sold, the ad is sent to the publisher's website/application to be displayed. The advertising exchange functions as an online "brokerage house" for digital advertising space, where the auction process is conducted in real time.⁵⁶

26. Google's ad exchange includes the AdMob platform, where publishers primarily target mobile users.⁵⁷ Google AdMob provides app developers with a tool that matches ads with their applications, and automatically handles logistics such as billing advertisers and networks and paying the app developers.⁵⁸

⁵⁴ "What Is Programmatic Advertising and How Does It Work?," Publift, February 3, 2023, available at <https://www.publift.com/adteach/what-is-programmatic-advertising>; "What is Real-Time Bidding (RTB)? Definition and Importance," Amazon Ads, available at <https://advertising.amazon.com/library/guides/real-time-bidding>.

⁵⁵ An advertising impression is a metric that measures the number of digital views or engagement with an advertisement. Impressions are typically quantified by cost per mille ("CPM"), which is the cost per 1,000 impressions. A CPM of \$4, means that a publisher receives \$4 whenever an advertisement is displayed on their website/application 1,000 thousand times. Kenton, Will, "What Is an Impression in Online Advertising, How to Count Them," Investopedia, January 4, 2023, available at <https://www.investopedia.com/terms/i/impression.asp>.

⁵⁶ "What Is Programmatic Advertising and How Does It Work?," Publift, February 3, 2023, available at <https://www.publift.com/adteach/what-is-programmatic-advertising>; "What is Real-Time Bidding (RTB)? Definition and Importance," Amazon Ads, available at <https://advertising.amazon.com/library/guides/real-time-bidding>.

⁵⁷ "Earn more revenue with your apps," Google AdMob, available at <https://admob.google.com/home/>.

⁵⁸ "Earn more revenue with your apps," Google AdMob, available at <https://admob.google.com/home/>; "How AdMob works," Google AdMob Help, available at <https://support.google.com/admob/answer/7356092?hl=en>.

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27. Google's ad exchange allows advertisers to manually bid for ad space by setting a "maximum cost-per-click" that they are willing to pay if they win an auction.⁵⁹ Google also offers a range of automated bidding strategies to help advertisers bid based on their performance goals. Google Ads automatically sets bids for the ads based on an assessment of the likelihood that an ad will result in a click or other advertiser-defined conversion.⁶⁰ Different types of automated bidding strategies help advertisers increase clicks, visibility, and conversions.⁶¹ Types of automated bidding strategies include:

- a. Maximize clicks: Set bids to get as many clicks as possible;
- b. Target impression share: Set bids to show the ads on top of the page for best visibility;
- c. Target cost-per-action ("CPA"): Set bids to get as many conversions as possible at the cost set by the advertiser;
- d. Target return on ad spend ("ROAS"): Set bids to get as much conversion value at the target return on ad spend set by the advertiser;
- e. Maximize conversions / conversion value: Set bids to achieve maximum conversion or conversion value (depending on the goal of the advertiser) within the target budget.⁶²

⁵⁹ "Manual CPC Bidding," Google Ads Help, available at <https://support.google.com/google-ads/answer/2390250?hl=en>.

⁶⁰ "Automated bid strategy: Definition," Google Ads Help, available at <https://support.google.com/google-ads/answer/6325042?hl=en>.

⁶¹ "About automated bidding," Google Ads Help, available at <https://support.google.com/google-ads/answer/2979071?hl=en>.

⁶² "About automated bidding," Google Ads Help, available at <https://support.google.com/google-ads/answer/2979071?hl=en>.

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28. Google refers to the strategies in (c) through (e) as “Smart Bidding” strategies, a set of “strategies that use machine learning to optimize for conversions or conversion value” in the auctions.⁶³

D. Conversion Measurement in Digital Advertising

29. A key goal of advertising is to encourage consumers to take specific actions, such as making a purchase, signing up for a newsletter, or downloading an app. The act of a user completing these desired actions is typically referred to as a “conversion.”⁶⁴ Measuring conversions is essential for advertisers to optimize their strategies, allocate resources efficiently, and maximize their return on investment.

30. Advertisers typically rely on multiple platforms or channels to reach their target audiences and therefore need to measure the conversion performance of their campaigns across all of those channels and platforms. By measuring conversion across multiple channels, they can compare the effectiveness of different channels and make data-driven decisions about where to allocate their resources for maximum impact.⁶⁵ Although online conversion measurement is more data-intensive and technologically advanced than earlier methods, marketers have long attempted to evaluate the effectiveness of—and attribute business outcomes to—specific marketing activities. For example, George Gallup and Daniel Starch tested recall in the early

⁶³ “Smart Bidding: Definition,” Google Ads Help, available at <https://support.google.com/google-ads/answer/7066642?hl=en>.

⁶⁴ “About conversion tracking,” Google Ads Help, available at <https://support.google.com/google-ads/answer/1722022>; “About mobile app conversion tracking,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6100665>; “Conversion tracking: Definition,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6308?hl=en>.

⁶⁵ See, e.g., “What is adtech and why is it important?,” Amazon Ads, available at <https://advertising.amazon.com/library/guides/what-is-adtech>.

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twentieth century by surveying people on the street and comparing their results to data on ad circulation to measure the effectiveness of ads.⁶⁶

31. In the context of Google's mobile app campaigns, "conversion tracking" is a free tool for advertisers that "shows you what happens *after* a customer interacts with your ads – whether they purchased a product, signed up for your newsletter, called your business, or downloaded your app."⁶⁷ In this context, "conversions" are counted when "someone interacts with [an advertiser's] ad" and takes an action defined by the advertiser, such as making a purchase or downloading an app.⁶⁸ Google notes that the benefits of conversion measurement to advertisers include that advertisers can see "which keywords, ads, ad groups, and campaigns are best at driving valuable customer activity," and therefore understand their "return on investment (ROI) and make better informed decisions about [their] ad spend."⁶⁹

32. Conversion measurement also allows advertisers to assess the performance of their mobile app campaigns across various ad formats and targeting options. Google offers a range of ad formats for app promotion and mobile app installs.⁷⁰ By measuring conversions, advertisers can determine which ad formats are most effective at driving the desired user actions and allocate their budget accordingly. Additionally, Google's mobile app campaigns allow advertisers to target specific audience segments on Google's properties, such as Search, Google

⁶⁶ Kierlanczyk, Kuba, "A Brief History of Market Research," Kelton, February 4, 2016, available at <https://www.keltonglobal.com/perspectives/a-brief-history-of-market-research/>.

⁶⁷ "About conversion tracking," Google Ads Help, available at <https://support.google.com/google-ads/answer/1722022>. Emphasis in original. *See also* "About mobile app conversion tracking," Google Ads Help, available at <https://support.google.com/google-ads/answer/6100665>.

⁶⁸ "Conversion: Definition," Google Ads Help, available at <https://support.google.com/google-ads/answer/6365>.

⁶⁹ "About conversion tracking," Google Ads Help, available at <https://support.google.com/google-ads/answer/1722022>.

⁷⁰ "About mobile app install ads," Google Ads Help, available at <https://support.google.com/google-ads/answer/6357635>; "Complete guide to Google App Campaigns ad formats and assets," App Radar, available at <https://appradar.com/academy/google-app-campaign/ad-assets-and-creatives>.

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Play, and Google Display Network.⁷¹ By measuring user actions post-click or post-impression, advertisers gain insights into which ads are driving desired outcomes, whether it is app installs, sign-ups, purchases, or other valuable actions.⁷² This way, measuring conversions helps advertisers refine their advertising strategies.

33. Google provides conversion measurement for free through Google Analytics for Firebase (“GA4F”).⁷³ Google explains that the GA4F SDK “automatically captures certain key events and user properties, and you can define your own custom events to measure the things that uniquely matter to your business.”⁷⁴ Google Mobile Ads (“GMA”) SDK is a mobile advertising platform that supports Google AdMob and Google Ad Manager.⁷⁵ Google explains that the GMA SDK “helps app developers gain insights about their users and maximize ad revenue.”⁷⁶ Google also allows third parties to provide conversion measurement services for campaigns on Google’s ad platforms.

34. Multiple third-party platforms such as AppsFlyer, Kochava, Adjust, and Singular also offer conversion measurement services on Google’s ad platforms. Publishers can choose any of these tools, or may use many of them at the same time, to evaluate the effectiveness of their ad

⁷¹ Sönmez, Ekin Gür, “A Complete 2023 Guide to Google App Campaigns and Their True Side,” *Replug*, February 20, 2023, <https://rplg.io/google-uac/>.

⁷² See, e.g., “About conversion tracking,” Google Ads Help, available at <https://support.google.com/google-ads/answer/1722022>; “Track app conversions with the Google Ads SDK or a server-to-server connection,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6095881?hl=en>; Porter, Katie Sullivan, “The Power of Tracking Pixels...and How to Ensure Their Accuracy,” *MarinOne*, September 6, 2022, available at <https://www.marinsoftware.com/blog/the-power-of-tracking-pixels-and-how-to-ensure-their-accuracy>.

⁷³ See “Google Analytics for Firebase Free and unlimited app analytics,” Firebase, available at <https://firebase.google.com/products/analytics>; “About conversion tracking,” Google Ads Help, available at <https://support.google.com/google-ads/answer/1722022>.

⁷⁴ “Google Analytics for Firebase Free and unlimited app analytics,” Firebase, available at <https://firebase.google.com/products/analytics>.

⁷⁵ “Mobile Ads SDK,” Google Ad Manager, available at <https://developers.google.com/ad-manager/mobile-ads-sdk>; “Overview of apps with Ad Manager,” Google Ad Manager Help, available at <https://support.google.com/admanager/answer/6238688>.

⁷⁶ “Mobile Ads SDK,” Google Ad Manager, available at <https://developers.google.com/ad-manager/mobile-ads-sdk>.

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campaigns.⁷⁷ Google noted in June 2020 that “[REDACTED]

[REDACTED] also describing that Google prefers [REDACTED] use [Google's] LP Firebase SDK, as this tends to give us better data for constructing multi-touch point conversion paths.”⁷⁸ [REDACTED]

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35. The process of conversion measurement using third-party platforms unfolds as follows. First, apps use a third-party platform's SDK to send events to the third-party platform's server. Second, the third-party platform's server contacts ad networks such as Google and Facebook for these conversions. Third, Google and Facebook respond to the conversion notifying network if there was an ad click and, finally, in the last step, the third-party platform gets click data from the ad networks. In essence, third-party platforms decide which network drove the conversion based on “last click attribution.”⁸⁰

E. Attribution Analysis in Digital Advertising

36. The process of identifying and assigning value to a set of campaigns, ads, or other marketing tactics, often referred to as “touchpoints,” that contributed in some manner to a conversion, is called attribution.⁸¹ Attribution models help marketers understand the customer journey and how different marketing campaigns or touchpoints (e.g., social media ads, email marketing, organic search, paid search) or in-app events contribute to conversions. This can help

⁷⁷ See “Set up conversions from Firebase or App Attribution Partners for App campaigns for engagement,” Google Ads Help, available at <https://support.google.com/google-ads/answer/9260620>.

⁷⁸ GOOG-RDGZ-00056514-531 at 516.

⁷⁹ *Anibal Rodriguez and Julie Anna Muniz, individually and on behalf of all other similarly situated, vs. Google LLC, et al.*, Defendant Google LLC's Second Supplemental Objections and Responses to Plaintiffs' Interrogatories, Set Six, 3:20-cv-04688, February 14, 2023 (“Interrogatory Response Set Six”), at p. 16.

⁸⁰ GOOG-RDGZ-00056108-129 at 122.

⁸¹ See “What is marketing attribution? A beginner's guide,” Amazon Ads, available at <https://advertising.amazon.com/library/guides/marketing-attribution>.

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advertisers to optimize their ad spend and focus on the channels or events that are driving the most results.⁸²

37. Google distinguishes between various attribution models, such as last click, first click, linear, time decay, position-based, and data-driven.⁸³ Attribution sharing within Google App Campaigns enables Google Ads to allocate conversions to the appropriate campaign.⁸⁴ For example, if an advertiser is running both app install and app engagement campaigns, this feature measures click conversions from app install campaigns and in-app actions from engagement campaigns, allowing for a more precise conversion measurement across different app campaigns running within the same account.⁸⁵ Attribution models that assign value to more than one touchpoint are called multi-touch attribution (“MTA”) models.⁸⁶ MTA models attempt to measure the impact of each touchpoint on the customer journey to a conversion, and assign credit to each touchpoint based on its relative contribution to the conversion.⁸⁷

38. Attribution is thus a fundamental step for advertisers to understand the value of ads and conversions. By understanding the relative value of each touchpoint and channel,

⁸² See “What is marketing attribution? A beginner’s guide,” Amazon Ads, available at <https://advertising.amazon.com/library/guides/marketing-attribution>.

⁸³ See “About attribution models,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6259715?hl=en>. Starting in June 2023, Google is removing the ability to select first click, linear, time decay, and position-based attribution models. (See “First click, linear, time decay, and position-based attribution models are going away,” Google Ads Help, April 6, 2023, available at <https://support.google.com/google-ads/answer/13427716?hl=en>.)

⁸⁴ See “About attribution sharing for App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/9996103?hl=en>.

⁸⁵ See “About attribution sharing for App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/9996103?hl=en>.

⁸⁶ See “Multi-Touch Attribution: What It Is & How To Use It,” Marketing Evolution, July 20, 2022, available at <https://www.marketingevolution.com/marketing-essentials/multi-touch-attribution>.

⁸⁷ In his deposition, Mr. Steve Ganem described multi-touch attribution as: “A user, in the course of deciding whether to make a purchase, for example, may encounter a number of ads on their journey to do so and may do Google searches along the way, and multi-touch attribution is the process of giving partial credit to each of those advertising touch points instead of just assuming that their last advertising touch point was solely responsible for their eventual conversion, that purchase.” Deposition of Steve Ganem, October 28, 2022 (“Ganem Deposition”), p. 35:16–24.

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marketers can optimize their marketing mix and improve the effectiveness of their advertising plan and budget.

V. SUMMARY OF MR. LASINSKI'S PROPOSED METHODOLOGIES FOR CALCULATING DISGORGEMENT OF PROFIT AND "ACTUAL" DAMAGES

39. Mr. Lasinski was retained by counsel for Plaintiffs "to provide expert analysis and, if requested, expert testimony regarding the measures of monetary relief that may be appropriate if liability is found against Google for the alleged wrongful conduct described in Plaintiffs' Fourth Amended Complaint."⁸⁸

40. In the Lasinski Report, Mr. Lasinski opines that alleged class-wide disgorgement of profit damages and "actual" damages can be calculated for both putative classes using "common proof."⁸⁹ His disgorgement of profit damages calculation relies on financial data produced by Google and Google's internal studies on the financial impact of various privacy settings and controls.⁹⁰ Mr. Lasinski's "actual" damages rely on his estimates of damages per device and the number of "Class Member Devices." Mr. Lasinski obtains these estimates using publicly available data on internet usage statistics; survey opinions rendered by Plaintiffs' survey expert (Mr. Mark Keegan), a consumer research panel maintained by Ipsos, and usage data produced by Google.⁹¹

⁸⁸ Lasinski Report, ¶ 9.

⁸⁹ Lasinski Report, pp. 1–3. Mr. Lasinski notes that he relied on discussions with Jonathan Hochman. Lasinski Report, ¶ 14. Mr. Hochman filed an expert report in this matter on March 22, 2023. Expert Report of Jonathan E. Hochman, March 22, 2023.

⁹⁰ See Lasinski Report, Section 7.

⁹¹ See Lasinski Report, Section 8.

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A. Disgorgement of Profit

41. Mr. Lasinski attempts to quantify disgorgement of profit by measuring revenue in Google's U.S. AdMob, App Promo, and Ad Manager product areas that are purportedly attributable to the alleged wrongful conduct.⁹² Mr. Lasinski takes Google's revenue in these product areas and applies discounts purportedly to restrict to revenue associated with users allegedly harmed by the alleged wrongful conduct. He calculates disgorgement of profit damages for the period from July 1, 2016, through December 31, 2022, under two scenarios, which differ with respect to their assumptions regarding Google's liability associated with the use of sWAA-off data.⁹³

42. In the first scenario ("Scenario 1"), Mr. Lasinski attempts to calculate disgorgement of profit damages for all of Google's U.S. App Promo, AdMob, and Ad Manager app ads revenue from signed-in, sWAA-off users attributable to conversion measurement.⁹⁴ Under his Scenario 1, Mr. Lasinski envisions a but-for world in which Google does not provide conversion measurement services to third-party app developers for sWAA-off users.⁹⁵ Mr. Lasinski calculates disgorgement of profit damages of [REDACTED] under this first scenario.⁹⁶

43. In the second scenario ("Scenario 2"), Mr. Lasinski attempts to calculate disgorgement of profit damages as the estimate from the first scenario, *plus* disgorgement of profit for all of Google's U.S. AdMob and Ad Manager app ads revenue purportedly attributable

⁹² Lasinski Report, ¶ 73. Mr. Lasinski also refers to this category of damages as Google's "unjust enrichment." See Lasinski Report, Section 7.

⁹³ Lasinski Report, ¶¶ 75–76.

⁹⁴ Lasinski Report, ¶¶ 77–78. Conversion measurement is a tool that shows "what happens after a customer interacts with [an advertiser's] ads – whether they purchased a product, signed up for [the advertiser's] newsletter, called [the advertiser's] business, or downloaded [the advertiser's] app." "About conversion tracking," Google Ads Help, available at <https://support.google.com/google-ads/answer/1722022>.

⁹⁵ See **Section VIII.B** below.

⁹⁶ Lasinski Report, ¶ 79.

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to collecting, saving, and using sWAA-off data for the purposes of serving and monetizing ads to sWAA-off users.⁹⁷ Under his Scenario 2, Mr. Lasinski envisions a but-for world in which Google does not provide any advertising-related services for sWAA-off users' devices, including serving ads, measuring impressions and clicks, or providing conversion measurement services to third-party app developers.⁹⁸ Mr. Lasinski calculates that disgorgement of profit damages under this second scenario is [REDACTED].⁹⁹

44. To attempt to calculate these damages, Mr. Lasinski begins with the following data to estimate U.S. net revenue for App Promo, AdMob, and Ad Manager for the period over which he estimates damages:

a. **App Promo:**¹⁰⁰ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁹⁷ Lasinski Report, ¶ 113. Serving and monetizing ads is a process of taking user traffic to a website or digital property and monetizing that traffic by presenting advertisements to those users in exchange for payment from advertisers. *See, e.g.*, “The Complete Guide to Ad Monetization,” Playwire, available at <https://www.playwire.com/ad-monetization>.

⁹⁸ *See Section VIII.B* below.

⁹⁹ Lasinski Report, ¶ 114.

¹⁰⁰ App Promo, which Google publicly labels “App campaigns,” is a type of Google Ads campaign focused on promotion of third-party apps. “About App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6247380?hl=en>.

¹⁰¹ Lasinski Report, ¶¶ 84–85.

¹⁰² Lasinski Report, ¶ 86.

[REDACTED]

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b. **AdMob:**¹⁰³

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c. **Ad Manager:**¹⁰⁷

¹⁰³ AdMob is “a mobile ad network and monetization platform for mobile developers who want to earn money from ads, gain actionable insights, and grow their app business.” “Compare Ad Manager, AdSense, and AdMob,” Google Ad Manager Help, available at <https://support.google.com/admanager/answer/9234653?hl=en>.

¹⁰⁴ Lasinski Report, ¶ 94.

¹⁰⁵ Lasinski Report, ¶ 95.

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¹⁰⁶ Lasinski Report, ¶ 98. Alphabet, Inc. is the parent company of Google.

¹⁰⁷ Ad Manager is an “ad management platform for large publishers” that “provides granular controls and supports multiple ad exchanges and networks, including AdSense, Ad Exchange, third-party networks, and third-party exchanges.” “Advertising with Google Ad Manager,” Google Ad Manager Help, available at <https://support.google.com/admanager/answer/6022000?hl=en>.

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[REDACTED].¹⁰⁸

45. Mr. Lasinski states that based on discussions with Plaintiffs' technical expert (Mr. Jonathan Hochman), he understands that "some advertisements for apps (*i.e.*, App Promo ads) can be served within apps (*i.e.*, on the AdMob and Ad Manager platform)."¹⁰⁹ Mr. Lasinski attempts to avoid double-counting revenue by adjusting his calculations for "the potential overlap in revenues attributed to AdMob or Ad Manager on the one hand and App Promo on the other."¹¹⁰ [REDACTED]

[REDACTED].¹¹²

46. Mr. Lasinski then applies the following adjustments to his net revenue estimates to attempt to calculate net revenue from signed-in, sWAA-off users attributable to conversion measurement:

¹⁰⁸ Lasinski Report, ¶ 106; GOOG-RDGZ-00072319-365 at 328.

¹⁰⁹ Lasinski Report, ¶ 99 [REDACTED] " "

¹¹⁰ Lasinski Report, ¶ 99.

¹¹¹ [REDACTED]

[REDACTED] *See Lasinski Report, ¶ 99;*

Lasinski Report, Schedules 7.1, 8.1, 8.2, and 8.3.

¹¹² *See Lasinski Report, ¶ 99; Lasinski Report, Schedules 7.1 and 8.1; GOOG-RDGZ-00072319-365 at 328.*

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a. **Net Revenue from Signed-In Users:** Mr. Lasinski first attempts to calculate net revenue for each of [REDACTED]
[REDACTED]
[REDACTED]

¹¹³

b. **Net Revenue from sWAA-off Accounts:** Mr. Lasinski then attempts to calculate net revenue from signed-in users that are attributable to those with sWAA turned off, by [REDACTED]
[REDACTED]

¹¹⁴

c. **Net Revenue Attributable to Conversion Measurement:** Finally, to calculate damages under Scenario 1, Mr. Lasinski attempts to calculate net revenue from signed-in, sWAA-off users that are attributable to conversion measurement. For [REDACTED]
[REDACTED]
[REDACTED] „¹¹⁵ [REDACTED]
[REDACTED]
[REDACTED]

¹¹³ See Lasinski Report, ¶¶ 88, 101, 109. [REDACTED]

¹¹⁴ Lasinski Report, ¶¶ 89, 101, 109. See also Lasinski Report, Schedules 2.2, 3.4, and 15.1.

¹¹⁵ Lasinski Report, ¶ 91; Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, pp. 15–16.

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47. Mr. Lasinski estimates Scenario 2 disgorgement of profit damages as the sum of the damages calculated under Scenario 1 and [REDACTED]

B. "Actual" Damages

48. Mr. Lasinski calculates purported class-wide “actual” damages¹²¹ by applying a \$3 per device payment to all putative class members under the assumption that this would have

¹¹⁶ Lasinski Report, ¶¶ 102, 110; GOOG-RDGZ-00188469-491 at 469, 475. As I discuss in **Section IX.B.3** below, Mr. Lasinski's reliance on the ChromeGuard study lacks basis as I understand [REDACTED]

¹¹⁷ Lasinski Report, ¶ 113.

¹¹⁸ Lasinski Report, ¶ 116.

¹¹⁹ Lasinski Report, ¶ 119, 126.

¹²⁰ Lasinski Report, ¶¶ 120–121, 127; GOOG-RDGZ-00188768 at tab “Matrix.” GAP is a setting available on a user’s Google Account’s Ads Controls page that lets users change ads personalization settings on Google services. Deposition of Greg Fair, October 3, 2022 (“Fair Deposition”), pp. 180:12–181:13.

¹²¹ Mr. Lasinski also refers to this category of damages as "restitution" damages. Lasinski Report, ¶ 69.

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been the payment “necessary to incentivize an individual to knowingly surrender the choice to keep activity on mobile apps private and allow an organization to track app activity data.”¹²² Mr. Lasinski’s proposed \$3 payment per device is based on “the baseline payment to [Ipsos] Screenwise Panel participants of \$3 per month for using a Screenwise meter app on a single mobile device (including both smartphones and tablets).”¹²³ Google has worked with the Ipsos Screenwise Panel, whose members “are paid to voluntarily link their devices, operate a special router, and recruit other members of the household to participate in a comprehensive online data collection process.”¹²⁴ Quoting Google’s privacy policy for the Ipsos Screenwise Panel, the Lasinski Report notes:¹²⁵

The Google Panel Privacy Policy explains that “[w]hen a Meter is placed on a device, it potentially will collect and record all interactions with that device. For example, when a Meter is placed on your mobile phone, it potentially will record everything you see on your screen and everything you tap, type, swipe, or otherwise input.” The policy goes on to further define the scope of the information collected, which includes, among other items, “every web page you’ve visited and all of your interactions with those web pages,” “your use of applications and widgets (collectively ‘apps’), software, and operating systems,” “the content you see on your screen or device at any given time,” and “[i]nformation you provide or otherwise input when visiting websites, using apps or using a TV user interface [including] search terms and personal information you provide to a website, TV user interface, or app, including your name, email address, home/work address, telephone number, Social Security number, or credit card number.”

49. Based on produced Google data on sWAA-off accounts, publicly available U.S. demographic data, and data from Plaintiffs’ survey expert, Mr. Lasinski estimates that there are

¹²² Lasinski Report, ¶¶ 130–131.

¹²³ Lasinski Report, ¶ 151. *See also* Lasinski Report, ¶¶ 141–142. The Lasinski Report also discusses other estimates for “consumers’ willingness to pay in their attempts to increase online privacy and/or prevent their own data from being saved” and “research organizations’ willingness to pay users to allow for additional data collection” that Mr. Lasinski does not use to estimate actual damages. *See* Lasinski Report, ¶¶ 143–147.

¹²⁴ Lasinski Report, ¶ 135.

¹²⁵ Lasinski Report, ¶ 138.

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[REDACTED] putative class members with [REDACTED] mobile devices.¹²⁶ Mr. Lasinski applies his \$3 per device proposed “actual” damages payment to these estimates to calculate total “actual” damages for the proposed classes of [REDACTED].¹²⁷

C. Apportionment of Disgorgement of Profit and “Actual” Damages

50. Mr. Lasinski posits that disgorgement of profit damages and “actual” damages “can be readily apportioned across the two [proposed] Classes” by allocating across the “U.S. market share of Android (*i.e.*, Class 1) and Non-Android (*i.e.*, Class 2) operating systems in mobile devices,” and the “share of Class 1 and Class 2 members that are typically ‘signed-in’ to their Google accounts.”¹²⁸

51. Additionally, Mr. Lasinski proposes that disgorgement of profit damages and “actual” damages “could also be readily allocated among [putative] Class members,” using [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] as well as survey data from Mr. Keegan and publicly available U.S. demographic data.¹³⁰

¹²⁶ Lasinski Report, ¶¶ 154–155, 159.

¹²⁷ Lasinski Report, ¶ 161.

¹²⁸ Lasinski Report, ¶¶ 162, 164, Schedule 1.5. [REDACTED]

[REDACTED] .” Lasinski Report, ¶ 165.

¹²⁹ Lasinski Report, ¶¶ 166–167.

¹³⁰ Lasinski Report, ¶ 167. In addition to being “allocated among [putative] Class members based on [the] number of [putative] Class members,” Mr. Lasinski proposes that damages could be allocated based on “the number of sWAA-Off User Months,” using “the number of sWAA-Off User Months deemed attributable to each [putative] Class member.” Lasinski Report, ¶¶ 166, 174.

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VI. MR. LASINSKI OVERSTATES DAMAGES BECAUSE HE FAILS TO EXCLUDE USERS WITH DEVICES THAT DID NOT ALLOW GOOGLE TO KNOW SWAA-OFF STATUS

52. Mr. Lasinski's damages methodologies require an accurate measure of the number of signed-in users that had WAA or sWAA turned off yet were purportedly subject to Google's alleged data collection.¹³¹ However, Mr. Lasinski's methodologies omit the fact that Google has been practically unable to observe an iOS user's sWAA status since the iOS 14 update in September 2020. In fact, Google treats those users as signed out for the purposes of the measurement of the data at issue. As a result, Mr. Lasinski's methodologies overstate damages and include many putative class members who could not have been affected by the alleged wrongful conduct.

53. Specifically, I understand that Plaintiffs allege that the collection of the data at issue and its use by Google for conversion measurement is improper if the user is signed in to a Google account and has the sWAA setting turned off.¹³² I further understand that Google's knowledge of a user's sign-in status and its ability to check the WAA/sWAA status of a user who interacts with an app or an ad depends on the presence of certain flags in the data generated by GA4F.¹³³ But, these flags are available only for a subset of users, not all users as Mr. Lasinski incorrectly assumes.

54. Specifically, Mr. Steve Ganem, Google's Product Manager for Google Analytics, testified that [REDACTED]

.134 [REDACTED]

¹³¹ See, e.g., Lasinski Report, ¶¶ 75, 131.

¹³² Ganem Deposition, pp. 44:2–19; 48:9–14.

¹³³ Ganem Deposition, p. 33:10–15.

¹³⁴ Ganem Deposition, p. 50:7–14.

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[REDACTED]

[REDACTED]

[REDACTED]

55. Mr. Ganem also testified that access to the flags that tell Google if an iOS user is in fact signed in to their Google account have been restricted since the iOS 14 update.¹³⁶ As a result, iOS users with at least this version of the operating system are, for practical purposes, signed-out users because Google cannot observe whether or not they are signed in.¹³⁷ Internal Google documents also discuss these limitations to Google's ability to measure information such as the data at issue in this matter from iOS 14 users.¹³⁸ Therefore, the alleged wrongful conduct does not and cannot occur for these users, and they should be excluded from Mr. Lasinski's calculations.

56. However, Mr. Lasinski's methodologies fail to consider or adjust for this restriction in devices running iOS 14 and above. His calculation of disgorgement of profit damages assumes [REDACTED].¹³⁹

[REDACTED]
[REDACTED].¹⁴⁰ However, he applies this percentage to the entirety of the proposed class period, including after the iOS 14 update was released in September 2020.¹⁴¹ Mr. Lasinski

¹³⁵ Ganem Deposition, pp. 50:17–51:3.

¹³⁶ Ganem Deposition, p. 70:4–19.

¹³⁷ Ganem Deposition, pp. 71:5–73:3.

¹³⁸ See, e.g., GOOG-RDGZ-00204559–589 at 561–565, 570; GOOG-RDGZ-00187249–303 at 252–253; GOOG-RDGZ-00199151–191 at 156.

¹³⁹ Lasinski Report, ¶ 88.

¹⁴⁰ See GOOG-RDGZ-00188768, tab “Matrix.”

¹⁴¹ “iOS 14 is available today,” Apple, September 16, 2020, available at <https://www.apple.com/newsroom/2020/09/ios-14-is-available-today/>.

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[REDACTED]

[REDACTED] ¹⁴² As a result, Mr. Lasinski overstates disgorgement of profit damages.

57. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ¹⁴³ As Mr. Lasinski notes, App Promo advertisements can be “served across Search, YouTube, Web Display, and App Display products.”¹⁴⁴ Mr. Lasinski provides no basis (beyond unspecified discussions with Mr. Hochman) for why it is appropriate to apply the

[REDACTED]

[REDACTED] . Mr. Lasinski also applies this factor to calculate the

[REDACTED] . [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ¹⁴⁷ The breakdown of signed-in and signed-out users and attendant revenue could reasonably differ across different platforms (e.g., websites vs. mobile apps) and Google product areas. By applying [REDACTED]

[REDACTED] Mr. Lasinski fails to consider these distinctions. Moreover, internal Google documents suggest that the

¹⁴² Lasinski Report, ¶¶ 88, 101, 109.

¹⁴³ Lasinski Report, ¶ 63.

¹⁴⁴ Lasinski Report, ¶ 88.

¹⁴⁵ Lasinski Report, ¶ 32; “About App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6247380?hl=en>.

¹⁴⁶ Lasinski Report, ¶ 24; “How AdMob works,” Google AdMob Help, available at <https://support.google.com/admob/answer/7356092?hl=en>.

¹⁴⁷ Lasinski Report, ¶ 29; “Advertising with Google Ad Manager,” Google Ad Manager Help, available at <https://support.google.com/admanager/answer/6022000?hl=en>.

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

58. Mr. Lasinski's estimate of "actual" damages also incorrectly assumes that all putative class members using iOS 14 (or later) are damaged. Mr. Lasinski's calculation of "actual" damages estimates the number of putative class members through December 2022. To do this, he estimates the number of "U.S. Internet Users with Smartphones" and then multiplies this number by the percentage of users with Gmail accounts—estimated from Mr. Keegan's survey—[REDACTED]

[REDACTED] Therefore, Mr. Lasinski's "actual" damages methodology also does not account for putative class members who may have only used iOS devices after the iOS 14 update. However, these individuals could not be putative class members because Google could not have received and used the data at issue, including a sWAA-off signal, for these users as alleged by Plaintiffs.

VII. THE TESTIMONY OF NAMED PLAINTIFFS IS INCONSISTENT WITH MR. LASINSKI'S METHODOLOGY TO CALCULATE CLASS-WIDE DAMAGES

59. Both Mr. Lasinski's methodologies for disgorgement of profit damages and "actual" damages imply that the behavior of putative class members towards their interaction with mobile apps using GA4F would have been different had they known about the alleged wrongful conduct. If putative class members' behavior would not be affected by their

¹⁴⁸ GOOG-RDGZ-00177709-741 at 714.

¹⁴⁹ Lasinski Report, ¶ 155.

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understanding of the alleged wrongful conduct, then Google would have likely been able to obtain similar profit through an alternative disclosure of its data collection and use (*i.e.*, there would be no unjust gains from the alleged wrongful conduct)¹⁵⁰ and putative class members would have allowed Google to collect the data at issue without the need for any additional compensation (*i.e.*, there would be no “actual” damages, as understood by Mr. Lasinski) or regardless of any emotional distress that they may have suffered.¹⁵¹

60. This reasoning also implies that one would have expected the behavior of named Plaintiffs to have changed after they became aware of the alleged wrongful conduct. However, their testimony shows that this has not been the case.

61. For example, Mr. Sal Cataldo testified that, although his understanding of the alleged violation of his privacy “heightened [his] awareness” and made him check his settings more “carefully” when using his smartphone, he could not identify a single behavioral change that he implemented as a result of this understanding.¹⁵²

Q. I'm asking if you've changed your behavior in any way as a consequence of what you allege Google has been doing to invade your privacy?

A. I would say I'm much more cognizant, I would say, diligent about fastidiously checking all my settings because I've noticed settings get turned on when they weren't on. I've been surprised more often than not, so I feel like I'm constantly having to check and make sure that my privacy is, at least to the extent I can control it, is being controlled. So I don't know that I've changed a specific behavior, but as far as my very heightened awareness, that's certainly, to me, something that I really made a diligent practice of trying to be very aware of what I'm doing and what steps I'm taking because I'm much less trusting.

Q. So just to make sure I understand, in response to -- strike that. In terms of what behavioral changes you've implemented, if any, as a consequence of what you allege to be Google's ongoing violation of your privacy, you've identified as one

¹⁵⁰ See Section VIII.A.

¹⁵¹ See Section X.A.

¹⁵² Deposition of Sal Cataldo, February 17, 2022 (“Cataldo Deposition”), pp. 42:19–43:25.

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change that you check your settings more carefully now than you did before; is that fair to say?

A. That's fair to say.

Q. Can you think of any other behavioral changes that you have implemented as a consequence of what you allege to be Google's ongoing violation of your privacy?

A. Sorry, I thought my audio cut out there. There's none that I can articulate specifically.

62. Similarly, Mr. Anibal Rodriguez testified that he did not change any of his

behaviors in terms of interacting with apps other than turning WAA off.¹⁵³

A. And, again, we're -- we're -- we're in this here. And as -- as far as what we're investigating, I didn't want to change any of my -- my -- my activities or -- or what I'm doing if before -- if -- if we're in this investigation, I needed to keep what I had. So my phone still had same apps, still have WAA off, and my -- my behaviors are still the same. In order for this to continue, I want to make sure that you know that I still have the same behaviors.

[...]

Q. Apart from making sure WAA is off, did you change your behavior in the way you interacted with any of the apps after and as a result of the allegations in your July 2020 Complaint?

A. No. The -- it -- it's -- I continue on with the WAA off and same behaviors. I mean, it's -- what I changed was the -- the WAA, making sure it's off, making sure all my e-mails -- because I didn't know that they were on and then make sure they're off. But once I could -- once I did that, I continued on.

63. Mr. Rodriguez did not tell his son to change his behaviors either.¹⁵⁴

Q. I'm asking: At any point after July 2020, as a result of the allegations in your initial Complaint that you told me you believe to be true, did you ask Nathan to change his behavior with respect to his apps, whether that would be to delete or otherwise use apps differently?

A. As far as apps goes, I didn't tell him to -- to change his behaviors on how to use the apps that he normally uses.

Q. Have you allowed Nathan to install new apps since July 2020?

A. Maybe. Yes. I mean, I don't know which ones.

¹⁵³ Deposition of Anibal Rodriguez, October 16, 2022 (“Rodriguez Deposition”), pp. 83:16–84:1; 327:2–15.

¹⁵⁴ Rodriguez Deposition, pp. 329:11–330:6.

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Q. Have you installed new apps since July 2020?

A. Yes.

Q. Before installing new apps after July 2020, did you investigate whether those apps use Google Analytics for Firebase?

A. No.

64. Moreover, Mr. Rodriguez testified that, when opening a new email account after learning of the alleged wrongful conduct, he chose to create another Gmail account instead of using a different provider, such as Yahoo simply because "it's easier to do a Gmail."¹⁵⁵

Q. Why didn't you create a Yahoo account for your two sons instead of a Gmail account?

A. Well -- well, if -- my son -- well, first of all, my son, he -- he -- I didn't create that. That's why you don't see it -- like, my information on there. Because, in fact, it -- that e-mail was not created on 12/31/11. So I don't know what -- how -- how you got that information. It's weird. My -- my son was one year's old. And he's the one that created that. Did I know he did it offhand? I -- I -- you know, I -- I -- that's -- I -- I talked to him about that. We went over the rules. Those are -- you know, we came up with rules. But as far as why didn't I get -- do a -- a Yahoo account, it's because I can put my -- if -- if he has -- if he created it, I'm just going to say: Okay, you created that. Now, you know what? Give me the e-mail so I can put it on my phone so I can see your e-mail. With my other -- with the other e-mails, again, I want -- I wanted it to link to my -- my account. When I say "linked," I mean a way for me to toggle through the different e-mails and also get notifications that, if an e-mail comes up with any of my kids' school or any purchases, they pop up. And that's why I use Gmail. Again, if -- if -- us -- when my regular account was switched off, adding another e-mail, it -- it -- there's this thing where it automatically goes into WAA on. And I wish that -- that didn't happen, where I had to go back and double-check and make sure and make -- you know, turn it off. That's the case. There's -- you know, why I didn't do a Yahoo account? I figure that it's easier to do a Gmail. And I'm the one that's actually looking at any information that's being sent to that e-mail, with -- with the exception to the "awesomenb." [sic]

Q. Is there a reason you didn't want to take the harder route of creating a Yahoo account while you investigated your claims against Google?

A. Because I already have my account already here. I already have my account on Google, my -- my -- my -- my Google account on my device. And, again, it's

¹⁵⁵ Rodriguez Deposition, pp. 311:8–313:9.

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easier to just go to Google and press "Add an account," create the e-mail really quick, get your password and such, and then have it in my dashboard to pick. But they don't have access to those e-mails that I created on my phone.

65. Mr. Julian Santiago testified he continued to use the same apps in his smartphone after learning about the alleged wrongful conduct.¹⁵⁶

Q. Why do you continue to use the Bleacher Report over the last year after finding out that you -- what you believe to be the fact that Google obtains and saves your app interaction data, even though you have web-and-app activity off?

A. I think Bleacher Report is a good app. And I like their journalism and I like their articles and how user friendly it is. And although unsettling that whatever I'm accessing on Bleacher Report may still be getting tracked and collected by Google, despite me having turned web-and-app activity off, which Google clearly states includes services like integrated third-party apps, it's still a good app. And it is highly unsettling but I've continued to use it because they do a good job.

[...]

Q. Between the prior year, at least at the time where you filed your Third Amended Complaint in November 2020, where you had -- or understood these allegations of yours that are in the Complaint, in August 2021 did you take any steps to come up with an alternative to ESPN Fantasy?

A. I suggested to my very stubborn friends who have been using this app for close to 10 years now that maybe we should use another app. And like I said, they're very stubborn and majority rules, therefore we stuck with using the same app.

Q. Surely you told those friends about what happened or what you believed Google to be doing; right?

A. No. Not surely. I simply presented to them, "Hey, why don't we use another app?"

Q. Did you give them a reason as to -- go ahead.

A. I suggested we use another app. I don't need to give my friends reasons.

Q. So you're telling me that you found what Google was doing to be highly offensive, to be screwing you, to be enough to be the case that you wanted to look into a different app and get your whole set of friends to move to a different Fantasy Football app but you didn't tell them that?

¹⁵⁶ Deposition of Julian Santiago, March 7, 2022 ("Santiago Deposition"), pp. 162:6–20, 176:22–178:12, 180:1–11.

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A. No. I simply suggested it.

Q. Did you tell them that the suggestion to move to a different Fantasy Football app was because you were concerned Google was obtaining their app interaction data?

A. No, I didn't get into detail about it. I simply suggested it in passing. It didn't stick. But perhaps with the following season, like I said I've been looking into different app alternatives, I will give them a little more reason to.

Q. Did you mention Google at all in your conversations --

A. No.

Q.-- with your friends?

A. No.

[...]

A. Your question was did I continue using MapMyRide?

Q. Yes.

A. Very simply because it's a great app for tracking my bike rides.

Q. Do you think there's an alternative?

A. Sure. There may be other options, yeah.

Q. Have you looked into them?

A. I've tried other bike ride tracking apps, and none of them do as good a job in my opinion as MapMyRide does.

66. Finally, Ms. Susan Harvey testified that she did not remember deleting any apps,

researching whether any apps used GA4F, or using any apps differently as a result of learning about the alleged wrongful conduct.¹⁵⁷

Q. After you found out about the actions that you allege in this lawsuit, did you delete any apps?

A. I'm sure there's been apps that have went off my phone because I switched phones. But I -- I don't know. Maybe if I didn't use something anymore, I would

¹⁵⁷ Deposition of Susan Harvey, October 29, 2022 ("Harvey Deposition"), pp. 244:16–245:1; 248:13–19.

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take it off. But I -- I was sort of curious what -- what was going to be find out. That's why I seeked attorneys.

Q. Did you investigate which apps use Google Analytics for Firebase?

A. That's not for me to do.

[...]

Q. Ms. Harvey, since filing this case, have you used any apps differently than you did before?

A. No. I'm trying to find out what's going on. It's being investigated right now. They're checking everything out. So if I stopped using those things, then nothing would be found out, would it?

67. Ms. Harvey also testified that she continued to use Gmail accounts on Android,

and created new Gmail accounts, after learning of the allegations against Google.¹⁵⁸

Q. If there were unauthorized transactions on a Gmail account, why did you make a new Gmail account?

A. Excuse me?

Q. I guess I'm just curious. If there are these unauthorized transactions that were happening through a Gmail account and there were concerns about that actual account, why did you choose Gmail as the new service to make your new e-mail address?

A. Because it's what you use with Android.

Q. Did you ever consider making a non-Gmail account?

A. I've had other non-Gmail accounts. I use Gmail. It's what I use. It goes with the Android device.

68. In summary, the four named Plaintiffs expressed in their respective depositions

that they did not change their behavior when using their mobile devices and interacting with mobile apps, which is inconsistent with Mr. Lasinski's methodologies of damages.

¹⁵⁸ Harvey Deposition, pp. 118:23–119:12.

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VIII. MR. LASINSKI'S DISGORGEMENT OF PROFIT DAMAGES ANALYSIS ENVISIONS UNREALISTIC BUT-FOR SCENARIOS THAT INFLATE DAMAGES

69. Mr. Lasinski's disgorgement of profit damages analysis assumes unrealistic but-for world scenarios with unnecessarily onerous restrictions on Google's conversion measurement and ad serving for sWAA-off accounts. Specifically, Mr. Lasinski's Scenarios 1 and 2 envision but-for worlds in which Google and third parties would take unrealistic steps to be consistent with Plaintiffs' theory of harm and damages. These scenarios also ignore any possible behavioral responses from either Google, ad publishers, or users that may result from Mr. Lasinski's proposed changes in Google's data collection and use practices. As a result, Mr. Lasinski's analysis fails to quantify any claimed damages correctly, and his disgorgement of profit damages are overstated.

A. Mr. Lasinski Ignores the Possibility of a But-For World with Alternative Disclosures from Google

70. A realistic alternative to Mr. Lasinski's Scenarios 1 and 2 is a scenario that assumes no change to Google's data collection and use procedures, and instead assumes that the relevant terms of service and/or privacy disclosures pertaining to sWAA include the alleged wrongful conduct. In other words, in this "alternative disclosure" scenario, Google would have disclosed even more explicitly its conversion measurement practices for sWAA-off accounts.¹⁵⁹ In the face of such a policy, consumers might have chosen differently whether and the extent to which to utilize the WAA setting, and/or other Google services, commensurate with their appetite for such data collection and the benefits they derive therefrom. Such a change in

¹⁵⁹ I understand from counsel that such modified disclosures would cure the alleged wrongful conduct at issue in this matter.

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consumer demand for Google services would consequently change Google's revenue and profit. In this framework, the appropriate measure of the value of the alleged wrongful conduct to Google would be the difference between Google's profit in the real world and the hypothetical profit it would have earned in this "more disclosure" but-for world. This alternative approach would necessarily embed changes in consumer behavior arising in response to the change in policy, which Mr. Lasinski ignores.

71. This "alternative disclosure" scenario reframes the damages analysis as one of estimating the impact of a policy change on consumer behavior. This is an active area of economic research that leverages well established and widely accepted analytical approaches. A common approach in this academic literature is a difference-in-differences technique, which exploits existing variation in policy across firms, geographies, or time to identify an effect of interest.¹⁶⁰ In this case, Mr. Lasinski might have leveraged variation in technology firms' data privacy policies and the impact of changes other firms made to their privacy policies to estimate the impact for Google. Mr. Lasinski makes no attempt to do any such exercise. Instead, Mr. Lasinski's disgorgement of profit damages effectively assumes that all sWAA-off users stop using Google's services, which is inconsistent with the named Plaintiffs' testimony in this matter, as I discuss below.

72. The academic literature also commonly uses surveys to quantify changes in demand and willingness to pay. A properly designed survey could elicit the degree to which a

¹⁶⁰ For example, Goldfarb and Tucker (2011) use a difference-in-differences design to study the effect of privacy regulations in the EU on the effectiveness of online advertising. *See Goldfarb, Avi, and Catherine E. Tucker, "Privacy Regulation and Online Advertising," Management Science, Vol. 57, No. 1, 2011, pp. 57–71.* Similarly, Johnson et al. (2019) use a difference-in-differences design to study the effect of consumers opting into the AdChoices program on revenue from online ads. *See Johnson, Garrett A., Scott K. Shriver, and Shaoyin Du, "Consumer privacy choice in online advertising: Who opts out and at what cost to industry?," Marketing Science, 2020, Vol. 39, Issue 1, 33–51.*

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change in data privacy policy would affect a user's behavior. Fielding the survey with an appropriate panel of survey participants would allow for valid inference regarding the broader population that the survey participants represent. Neither Mr. Lasinski nor Mr. Keegan, Plaintiffs' survey expert, makes any attempt to conduct such an analysis to measure user behavior directly or characterize potential heterogeneity of user preferences.

73. Had he conducted an analysis of this "alternative disclosure" scenario, Mr. Lasinski would likely have found that the impact of the alleged wrongful conduct on consumer demand and Google revenue and profit to be minimal. First, [REDACTED]

[REDACTED]

[REDACTED] .¹⁶¹ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] .¹⁶²

74. Further, I understand that the putative class members consented to the privacy policies of the third-party apps that used GA4F for conversion measurement, and that these privacy policies allowed for the third-party app developer to measure conversions—including by contracting such measurement out to Google via GA4F—if they chose. For example, AccuWeather's user privacy statement specifies that "AccuWeather and third-party vendors, including Google, may use first-party cookies (such as the Google Analytics cookies) ... to: (a) inform, optimize and serve ads based on a user's past visits to AccuWeather Sites or (b) report

¹⁶¹ [REDACTED]

See Lasinski Report, Figure 21.

¹⁶² *See Section VII.*

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how Your ad impressions, other uses of ad services, and interactions with these ad impressions and ad services are related to visits to AccuWeather Sites.”¹⁶³ Dr. Hoffman, another expert for Google in this matter, opines that it makes sense from a user interface (or UI) design perspective for disclosures related to data collection pertaining to third-party apps to be found in the third-party apps’ user agreements.¹⁶⁴ She opines that in addition to subsections in Google’s Privacy Policy, third-party app user agreements serve as another source of information that communicates to users that Google is collecting and saving information related to their activity on such apps.¹⁶⁵

75. I also understand that many app developers who use GA4F also use multiple other analytics providers and disclose multiple analytics providers in their privacy policies.¹⁶⁶ However, in this matter, Plaintiffs claim to have been harmed *only* by Google’s receipt of their data while their sWAA setting was off and *not* by any of these other analytics providers’ simultaneous collection of similar data for similar purposes.

76. To measure the impact of a but-for “alternative disclosure” scenario on Google’s revenue, one could consider consumer behavior toward app developers who use multiple analytics providers, or who only use analytics providers other than Google. These other analytics providers do not have a separate relationship with the user that includes a WAA or sWAA

¹⁶³ “Privacy Policy,” AccuWeather, August 21, 2020, available at <https://www.accuweather.com/en/privacy>. See also “Privacy Policy,” Applebee’s, April 1, 2023, available at <https://www.applebees.com/en/privacy-policy>; “Privacy Policy - United States, DoorDash - General Privacy Policy,” DoorDash, January 3, 2023, available at <https://help.doordash.com/legal/document?type=cx-privacy-policy®ion=US&locale=en-US>.

¹⁶⁴ Expert Report of Donna L. Hoffman, May 31, 2023 (“Hoffman Report”), Section VIII.B.

¹⁶⁵ Hoffman Report, Section VIII.B.3.

¹⁶⁶ See, e.g., “Privacy Policy,” Little Caesars, January 1, 2023, available at <https://littlecaesars.com/en-us/legal/privacy-policy> (“We may use Google Analytics, Adobe Analytics, or other Service Providers for analytics services”); “Target Privacy Policy,” Target, December 31, 2022, available at <https://www.target.com/c/target-privacy-policy/-/N-4sr7p> (“Analytics services such as Site Catalyst by Adobe Analytics, Google Analytics and Crazy Egg provide services that analyze information regarding visits to our websites and mobile application(s).”).

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control like the one at issue in this matter. When installing such an app, the user chooses whether to agree to the app developer's privacy policy or refrain from using the app. If it were true that putative class members have an economic preference against sharing the data at issue with Google in particular, developers and publishers might observe consumers choosing not to use apps that share the data at issue with Google in this "alternative disclosure" but-for scenario.

77. The existence of this type of consumer behavioral response has been studied in other markets. For example, a joint study by McKinsey and NielsenIQ shows that some consumers show a preference for environmentally sustainable products, which creates an incentive for firms to develop sustainability initiatives as a way of making their products more appealing to those customers and grow sales.¹⁶⁷ Consumers have been shown to prefer products from such sustainability-minded manufacturers even if the intrinsic characteristics of the underlying products are unchanged. That is, consumers prefer products from such manufacturers even when the characteristics of the product do not change when the manufacturer begins producing it in a "carbon neutral" facility, much the same way that the features of an app do not change when the conversions on the ads it displays are measured by a third party instead of Google.

78. This example illustrates that considering the possible behavioral responses of consumers surrounding these choices is necessary to reliably estimate the impact of changes to Google's profit in the but-for world in this matter. However, Mr. Lasinski does not attempt to perform this type of analysis. Considering this "alternative disclosure" but-for world underscores infirmities in Mr. Lasinski's analysis, which makes no effort to measure how the behavior of

¹⁶⁷ "Consumers care about sustainability—and back it up with their wallets," McKinsey and Company, February 6, 2023, available at <https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/consumers-care-about-sustainability-and-back-it-up-with-their-wallets>.

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consumers, publishers, and developers would change in the absence of the alleged wrongful conduct. As I discuss above, this scenario might result in publishers and developers still using Google's ad platform—such that any impact on Google's profit might be small or negligible—but aided by third-party analytics providers.

B. Mr. Lasinski Ignores that Third Parties Would Still Provide Conversion Measurement Services in the But-For World

79. Mr. Lasinski's Scenario 1 envisions a but-for world in which Google does not provide conversion measurement services to third-party app developers for sWAA-off users. Mr. Lasinski's Scenario 2 further envisions a but-for world in which Google does not provide any advertising related services for sWAA-off users' devices, including serving ads or measuring impressions or clicks. As I discuss below, conversion measurement (including for sWAA-off users) would likely continue in the but-for worlds contemplated by Mr. Lasinski, and Google would likely continue to earn advertising revenue. Mr. Lasinski fails to consider these features and, as a result, his analysis assumes an unrealistic but-for world. In particular, Mr. Lasinski fails to consider the revenue that Google would have generated in the but-for-worlds where Google does not engage in the alleged wrongful conduct.

80. In the absence of GA4F conversion measurement for sWAA-off users under Mr. Lasinski's Scenario 1, Google would still need to charge advertisers for advertising on Google's network, and app developers would still need to know how their ad campaigns were performing for all users who interacted on their apps. As I explain in **Section IV** above, some form of conversion measurement or attribution measurement has been an essential part of advertising campaigns since long before the age of online ads because advertisers wish to know how effective their ads campaigns are in order to adjust their campaigns and allocate their

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advertising budgets to maximize the returns on their ad spending. In this context, it is reasonable to expect advertisers to react to the loss of conversion measurement provided by Google in Mr. Lasinski's hypothetical but-for world by utilizing similar services from other providers. Indeed, most of them already do so.¹⁶⁸ This is especially true in a context where conversion measurement for online ads is a service that Google provides for free currently.¹⁶⁹

81. Mr. Lasinski also ignores that Apple implemented its own conversion measurement in iOS14: SKAdNetwork.¹⁷⁰ Apple's solution provides advertisers with attribution even in the absence of the user or device identifier by providing the advertiser with aggregated conversion information.¹⁷¹ Not only can app developers and advertisers leverage this solution for their iOS apps, but Google could also provide its own similar solution.¹⁷² Google explains that “[a]s the industry moves away from individual identifiers, particularly with the rollout of Apple's ATT policy, multiple forms of measurement have emerged for iOS app install campaigns,” where Google's own conversion modeling uses “Google's AI to help you assess the performance of your campaigns when a subset of conversions can't be directly linked to ad interactions.”¹⁷³

¹⁶⁸ See GOOG-RDGZ-00056514-531 at 516, stating that “80% of app conversions are tracked using non-Google SDKs” and GOOG-RDGZ-00202698-713 at 699–700 showing the Facebook SDK has higher penetration than GA4F.

¹⁶⁹ See “About conversion tracking,” Google Ads Help, available at <https://support.google.com/google-ads/answer/1722022>.

¹⁷⁰ See “SKAdNetwork,” Apple Developer, available at <https://developer.apple.com/documentation/storekit/skadnetwork>.

¹⁷¹ “SKAdNetwork,” Apple Developer, available at <https://developer.apple.com/documentation/storekit/skadnetwork> (“The information in the postback that Apple cryptographically signs doesn't include user- or device-specific data. It may include values from the ad network and the advertised app if providing those values meets Apple's privacy threshold”). See also “Best practices guide: Drive better performance and measurement for iOS App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/10384955?hl=en> (“Apple's new attribution solution for campaign measurement, helps app advertisers measure their ad activity, such as impressions, clicks, and app installs, on an aggregated level”).

¹⁷² “Best practices guide: Drive better performance and measurement for iOS App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/10384955?hl=en>.

¹⁷³ “Best practices guide: Drive better performance and measurement for iOS App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/10384955?hl=en>.

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These changes suggest that conversion measurement can be done by Google (or other parties) while respecting users' privacy settings, showing that the but-for world envisioned by Mr. Lasinski ignores reality.

82. Further, in Mr. Lasinski's Scenario 1, Google would still have generated revenue from advertising spending from ad interactions other than conversions, such as impressions and clicks.¹⁷⁴ However, Mr. Lasinski fails to consider this revenue. In addition, under both Scenario 1 and Scenario 2, app developers would likely have relied on third-party measurement tools instead of Google's GA4F to measure the effectiveness of their advertising campaigns. I understand that these changes in advertisers' behavior would not lead to any changes in how sWAA-off users' data are used by Google. App developers could—and in fact already do—use third-party measurement tools to measure conversions, impressions, and clicks for all users.¹⁷⁵

[REDACTED]
[REDACTED]
[REDACTED] Under Mr. Lasinski's scenarios, app developers would likely use non-GA4F, third-party conversion measurement in greater numbers than they already do in the real world.

¹⁷⁴ See, e.g., Deposition of Belinda Langner, December 15, 2022 ("Langner Deposition"), pp. 213:15–23. ("In the context of ads, advertisers are able to target for users who are more likely to do a specific event which can include some of these various ways that are listed in the slide, and Google makes money by driving more -- through the ad impressions and the ad clicks that we drive to -- to help app advertisers reach their marketing goals.")

¹⁷⁵ Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, pp. 15–16.

¹⁷⁶ GOOG-RDGZ-00177709–741 at 710, 712.

[REDACTED]
[REDACTED]
[REDACTED] *See also* Deposition of Rahul Oak, November 18, 2022, pp. 109:21–111:17.

¹⁷⁷ GOOG-RDGZ-00056514–531 at 516.

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83. [REDACTED]

[REDACTED]

[REDACTED]

Since most app developers already use third-party conversion measurement tools instead of, or in addition to, GA4F, they may simply react by dropping the use of GA4F while continuing to use Google's ad platform.¹⁷⁸ At the same time, Google could try to adapt by measuring attribution in alternative ways in order to continue to serve ads, measure conversions and engagement, and generate revenue in the absence of conversion measurement through GA4F. An appropriate damages analysis would have to consider Google's revenue under the alternative that a third-party conversion measurement tool were used instead of GA4F.

Mr. Lasinski's damages analysis fails to do so.

84. Moreover, this third party could also be created and managed by Alphabet itself. For example, Google's parent company, Alphabet, could own a company separate from Google that would offer all conversion measurement services in a similar manner to the third-party conversion measurement platforms that I reference above and enforce strict firewalls to ensure only sWAA-on data were shared with Google and sWAA-off data were shared only with the third-party app from which the data were generated. Users, app developers, and advertisers would likely see no change in their experience as this arrangement would closely resemble the real world, including that sWAA-off data would not be used to personalize advertising. The only difference would be that the firewall would be legal and structural rather than an internal policy forbidding personalized advertising, and the servers used to log conversion activity and ad interactions would be run by a separate legal entity. That is to say, any decrease in advertiser ad spend on Google's advertising network would likely be small.

¹⁷⁸ GOOG-RDGZ-00056514-531 at 516.

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85. Furthermore, Google offers conversion modeling as a solution to increasing browser restrictions, regulatory updates, and customer privacy expectations that “force the industry to move away from third-party cookies on the web and device IDs in apps.”¹⁷⁹ Conversion modeling uses machine learning to “quantify the impact of marketing efforts when a subset of conversions can’t be tied to ad interactions.”¹⁸⁰ Google explains that “[m]odeled conversions use data that doesn’t identify individual users to estimate conversions that Google is unable to observe directly.”¹⁸¹ When Google receives ad interactions and online conversions without the linkage between the two, conversion modeling helps determine whether a Google ad interaction led to the online conversion.¹⁸² Further, I understand that the use of modeled conversions for sWAA-off users would not necessarily instantiate the alleged violations of privacy claimed to be suffered by Plaintiffs in this matter. The development of conversion modeling suggests that Google would be able to leverage alternative solutions in the absence of GA4F conversion measurement for sWAA-off users under Mr. Lasinski’s damages scenarios.¹⁸³

IX. MR. LASINSKI’S METHODOLOGY FOR CALCULATING DISGORGEMENT OF PROFIT DAMAGES REQUIRES UNRELIABLE ASSUMPTIONS THAT OVERSTATE DAMAGES

86. As I explain in **Section V.A**, Mr. Lasinski attempts to quantify disgorgement of profit damages for Google’s AdMob, App Promo, and Ad Manager products between

¹⁷⁹ “Your guide to conversion modeling: Introduction,” Google Ads Help, available at <https://support.google.com/google-ads/answer/12445061?hl=en>.

¹⁸⁰ “Your guide to conversion modeling: Introduction,” Google Ads Help, available at <https://support.google.com/google-ads/answer/12445061?hl=en>.

¹⁸¹ “About modeled online conversions,” Google Ads Help, available at <https://support.google.com/google-ads/answer/10081327?hl=en>.

¹⁸² “About modeled online conversions,” Google Ads Help, available at <https://support.google.com/google-ads/answer/10081327?hl=en>.

¹⁸³ de Freitas, Henrique, “Conversion modeling through Consent Mode in Google Ads,” Google Marketing Platform, April 15, 2021, available at <https://blog.google/products/marketingplatform/360/conversion-modeling-through-consent-mode-google-ads/>.

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July 1, 2016, and December 31, 2022, under two scenarios, which differ with respect to their assumptions regarding Google's liability associated with the use of sWAA-off data.

87. Even putting aside the fact that Mr. Lasinski's scenarios are unrealistic as I discuss above, Mr. Lasinski's methodology for calculating disgorgement of profit damages is unreliable. In this section, I show that Mr. Lasinski's methodology overstates damages because:

- a. it incorrectly assumes that all owners of Google accounts with sWAA off were exposed in equal manner to the alleged wrongful conduct and fails to consider lower account activity—and lower revenue—associated with sWAA-off accounts;
- b. it incorrectly assumes that Google earns revenue directly through conversion measurement;
- c. it overstates the fraction of Google's revenue that can be attributed to sWAA-off users by assuming that all users—regardless of sWAA status—are equally likely to interact with online ads;
- d. it uses inaccurate or irrelevant measures of revenue attributable to signed-in users;
- e. it misinterprets the status of the WAA and sWAA settings in putative class members' Google accounts;
- f. it uses a speculative and unsupported estimate for the share of revenue attributable to conversion measurement based on the ChromeGuard study;
- g. it fails to consider any revenue Google would have generated in the but-for worlds in which there is no alleged wrongful conduct; and
- h. it underestimates the costs that should be deducted from Google's at-issue revenue.

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A. Mr. Lasinski's Proposed Calculation of Disgorgement of Profit Damages Overstates the Alleged Harm Suffered by sWAA-Off Users

88. Mr. Lasinski assumes without basis that all owners of Google accounts with sWAA off were harmed, and therefore overstates his claimed disgorgement of profit damages.

89. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]. Thus, Mr. Lasinski's

analysis fails to consider lower account activity—and lower revenue—associated with sWAA-off accounts. In particular, Mr. Lasinski does not consider that Google generates revenue from user traffic and users' interactions with ads, rather than simply higher numbers of user accounts. Users with more activity will have more exposure to ads, so they would be expected to generate more revenue. However, Mr. Lasinski ignores this fact.

90. [REDACTED]

[REDACTED]

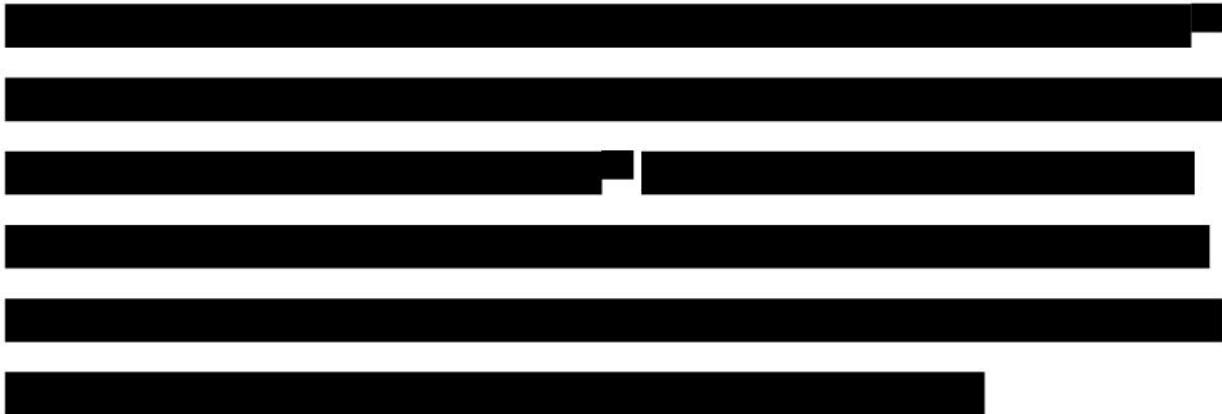
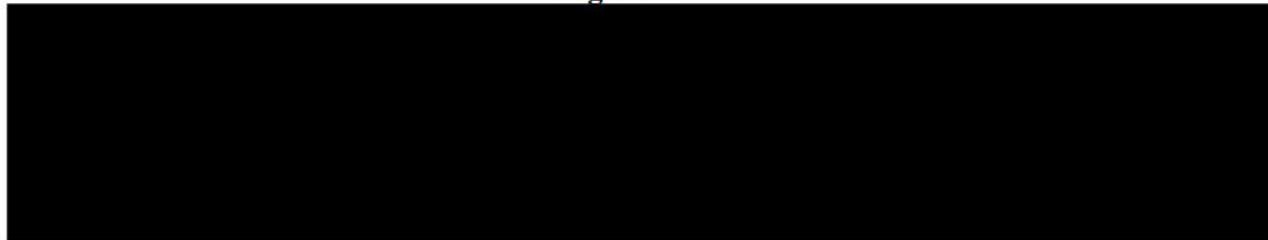
[REDACTED]

[REDACTED]

[REDACTED]

¹⁸⁴ Lasinski Report, Schedules 2.2, 3.4, and 4.4.

¹⁸⁵ Interrogatory Response Set Six, Second Supplemental Response to Interrogatory No. 17, pp. 19–24.

Highly Confidential — Attorneys' Eyes Only**Figure 1¹⁸⁹**

B. Mr. Lasinski's Calculation of Disgorgement of Profit Damages Incorrectly Assumes That Google Earns Revenue Through Conversion Measurement

91. Mr. Lasinski's flawed disgorgement of profit damages analysis inappropriately attributes Google revenue associated with the use of sWAA-off data to the alleged wrongful conduct. Google explained that [REDACTED]

190 GA4F

¹⁸⁶ Ad impressions show how often an ad is shown to users, counted each time an ad is shown on a search result page or other site on the Google Network. *See* “Impressions: Definition,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6320?hl=en>.

¹⁸⁷ Ad clicks are counted when a user clicks on an ad. Google explains that clicks can help advertisers understand how well the ad is appealing to people who see it. *See* “Click: Definition,” Google Ads Help, available at <https://support.google.com/google-ads/answer/31799?hl=en>.

¹⁸⁸ Mr. Lasinski adjusts [REDACTED], which is Mr. Lasinski's estimate for the average for full-year 2022. Lasinski Report, Schedule 13.1.

¹⁸⁹ Lasinski Report, Schedule 13.2; Interrogatory Response Set Six, Second Supplemental Response to Interrogatory No. 17, pp. 21–24.

Interrogatory

¹⁹⁰ Response Set Six, Second Supplemental Response to Interrogatory No. 17, p. 19.

¹⁹⁰ Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, p. 14.

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instead “helps Google’s revenue-generating functions because it leads to a ‘virtuous cycle’ in the parlance of the GA4F team that helps developers make their apps perform better, which in turn leads to increased user engagement, which in turn leads to app developers investing more in their apps and into advertising their apps.”¹⁹¹ In addition, through a process called attribution, Google “serves as an accountant for the app developer/advertiser” to make an educated guess about whether an interaction with that advertiser’s advertisement came from the same device or user as a conversion (recorded by GA4F or third-party conversion measurement tools), depending on the types of information available. Advertisers then use these data to measure the effectiveness of the ad campaign,¹⁹² which can help them to refine their advertising and to determine how much advertising budget to spend in the future on similar advertising.

92. As I discuss in **Section IV.E**, an attribution model determines how credit for sales and conversions is assigned to the various touchpoints in a user’s conversion path, and Google uses MTA models to assign credit to each point of contact between a user and an advertiser such that the advertiser can measure how much influence each channel had on a sale. Google utilizes certain “consented-to” data from the GA4F and GMA SDKs to improve its attribution models, which allows advertisers to better measure the effectiveness of the ads. Contrary to the assumptions underlying Mr. Lasinski’s analysis, I understand Google generates no revenue from

¹⁹¹ Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, p. 14. *See also* GOOG-RDGZ-00030019-023 at 019-020.

¹⁹² Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, pp. 15-16; GOOG-RDGZ-00030019-023 at 019-020. “Through the concepts of ‘data sharing’ and ‘linking’, the data for a given app becomes actionable … The intent is to create a virtuous cycle.”

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conversion measurement;¹⁹³ the advertiser has already made a bidding decision and committed a budget by the time conversion measurement takes place.¹⁹⁴

1. *Mr. Lasinski ignores that Google generates revenue from advertising and ad personalization, not from conversion measurement*

93. Mr. Lasinski ignores the fact that Google does not use app measurement data from sWAA-off users for personalization.¹⁹⁵ As Mr. Hochman acknowledges, Google's "Footprints" data repository contains "app activity data generated by signed-in users *whose WAA and sWAA settings are on.*"¹⁹⁶ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

,,198 [REDACTED]

[REDACTED].¹⁹⁹ Instead, online advertising platforms such as Google or Meta are paid to serve ads at the advertiser's behest.²⁰⁰ [REDACTED]

¹⁹³ Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, p. 14.

¹⁹⁴ See "Choose your bid and budget," Google Ads Help, available at <https://support.google.com/google-ads/answer/2375454?hl=en>; "About conversion tracking," Google Ads Help, available at <https://support.google.com/google-ads/answer/1722022>.

¹⁹⁵ I understand that Google does not associate data from sWAA-off users with the users' GAIA IDs that enable conversion measurement and providing personalized ads to those GAIA IDs. Instead, Google uses pseudonymous identifiers for sWAA-off users to pseudonymize the data. Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, p. 15. "Google does not use app measurement data generated while a user is signed in and has sWAA off ... for personalized advertising." See also Langner Deposition, pp. 29:5-9, 31:7-32:22. "A. When a user has turned off WAA, or Web and App Activity, Google respects the user's settings and we do not use any of the WAA-off associative data for personalization in the ad systems ... When WAA is off and there are a number of other additional conditions, Google does not use that data for conversion measurement associated with the specific GAIA ID."

¹⁹⁶ Hochman Report, ¶¶ 142-143 (emphasis added); Deposition of David Monsees, September 15, 2022, pp. 90:11-13, 133:18-134:7 [REDACTED]

¹⁹⁷ GOOG-RDGZ-00118124-129 at 125.

¹⁹⁸ Lasinski Report, Schedules 3.3 and 4.3.

¹⁹⁹ Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, p. 14 [REDACTED].

²⁰⁰ See, e.g., "Get the Most Out of Your Bid in the Facebook Ad Auction," Facebook Business, January 16, 2018, available at

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[REDACTED]

[REDACTED]²⁰¹ Mr. Lasinski does not clarify or provide evidence on how Google generates revenue through the alleged wrongful conduct (*i.e.*, measuring conversions from sWAA-off users), given that Google does not use data from sWAA-off users for ad personalization. Given that these users would have no economic interest in revenue Google earns from facilitating advertisers and app developers to offer personalized ads, Mr. Lasinski's damages methodology is flawed and unsupported.

2. *Mr. Lasinski ignores that GA4F can be substituted by other conversion measurement tools in Google's App Campaign business*

94. To encourage adoption of GA4F and generate value from sWAA-on users' data, Google provides the GA4F service to app developers and advertisers at no charge [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

<https://webcache.googleusercontent.com/search?q=cache%3AKbNJo6yNpVkJ%3Ahttps%3A%2F%2Fwww.facebook.com%2Fbusiness%2Fnews%2Fget-the-most-out-of-your-bid-in-the-facebook-ad-auction&cd=4&hl=en&ct=clnk&gl=us>; "Ad Revenue: What Is and How to Increase it?," CodeFuel, June 29, 2021, available at <https://www.codefuel.com/blog/ad-revenue/>.

²⁰¹ GOOG-RDGZ-00067439-474 at 450.

²⁰² Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, p. 14 [REDACTED]

²⁰³ Banton, Caroline, "Loss Leader Strategy: Definition and How It Works in Retail," Investopedia, May 27, 2021, available at <https://www.investopedia.com/terms/l/lossleader.asp>. See also GOOG-RDGZ-00030019-023 at 019-020; Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, p. 14 [REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Likewise,

sWAA-off users benefit greatly from improvements in app quality and user experience driven by analytics based on data generated by sWAA-on users.

95. Similarly, the means through which conversion measurement takes place (either through Google via GA4F or through other third-party conversion measurement tools) may not impact how advertisers serve personalized ads through Google's App Campaign product. I understand that conversion measurement tools can be substitutes in Google's App Campaign business,²⁰⁶ and Google's App Campaign revenue would not necessarily be impacted by app developers' or advertisers' choice of conversion measurement tool. In this way, GA4F's role in Google's App Campaign business is akin to a replaceable component of a composite device, such as the RAM chip in a laptop computer. While laptops cannot function without *any* RAM chip, laptops typically do not require a certain brand of RAM chip—they merely require a compatible RAM chip. As I discuss in **Section VIII.B**, Mr. Lasinski fails to consider that GA4F could be substituted by other third-party conversion tracking tools, and instead assumes that

²⁰⁴ Nightingale, Ed, "Microsoft loses up to \$200 on each Xbox console sold," Eurogamer, November 1, 2022, available at <https://www.eurogamer.net/microsoft-loses-up-to-200-on-each-xbox-console-sold>; Banton, Caroline, "Loss Leader Strategy: Definition and How It Works in Retail," Investopedia, May 27, 2021, available at <https://www.investopedia.com/terms/l/lossleader.asp>.

²⁰⁵ Nightingale, Ed, "Microsoft loses up to \$200 on each Xbox console sold," Eurogamer, November 1, 2022, available at <https://www.eurogamer.net/microsoft-loses-up-to-200-on-each-xbox-console-sold>.

²⁰⁶ See "Track app conversions with third-party app analytics," Google Ads Help, available at <https://support.google.com/google-ads/answer/7382633?hl=en> (explaining that app conversion data from third-party app analytics provider could be imported). See also GOOG-RDGZ-00056514-531 at 516 (showing that 80 percent of the conversions are tracked through third-party trackers as of June 2020).

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advertisers would choose to reduce their ad expenditures in response to absence of conversion measurement through GA4F rather than migrating to third-party conversion measurement tools. Mr. Lasinski assumes, without basis, that Google's revenue would decrease without conversion measurement through GA4F, thereby overstating disgorgement of profit damages.

3. *Mr. Lasinski's estimate of the share of revenue attributable to conversion measurement based on the ChromeGuard study is unsupported and speculative*

96. Mr. Lasinski's calculation of disgorgement of profit damages for AdMob and Ad Manager assumes, without basis, that [REDACTED]

[REDACTED]

[REDACTED]

,,207 [REDACTED]

[REDACTED]

[REDACTED]

,,208 [REDACTED]

[REDACTED]

,,209 [REDACTED]

97. I have seen no evidence in the record—nor has Mr. Lasinski presented any—that the ChromeGuard study is an appropriate reference for measuring any purported revenue

²⁰⁷ Lasinski Report, Schedules 3.3 and 4.3; GOOG-RDGZ-00188469-491 at 475. [REDACTED]

[REDACTED] See GOOG-RDGZ-00188469-491 at 473.

²⁰⁸ Lasinski Report, ¶ 102.

²⁰⁹ Lasinski Report, ¶ 68.

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I understand that the purpose of the ChromeGuard study was to evaluate the impact on “Google and the Ads ecosystem” of *all* third-party cookies being blocked by default on Incognito mode in Chrome.²¹⁰ The privacy setting at issue in this matter is different. Mr. Lasinski’s damages methodology claims to calculate *solely* the effect of Google not being able to “collect, save, and/or use WAA/sWAA-Off Data” for conversion measurement on Google’s revenue.²¹¹ However, Google provides advertisers with the ability to measure these conversions for free.²¹² Developers can also measure conversions using third-party services such as AppsFlyer, Kochava, Adjust, and Singular.²¹³

.²¹⁴ Mr. Lasinski provides no basis—nor have I seen any documents in the case record—to support

from the ChromeGuard study (which studies a distinct scenario in which I understand third-party cookie data from users in Incognito mode would not be available to Google or any other provider of conversion measurement services) to this matter. The ChromeGuard study measures a fundamentally different revenue stream, and it is not clear from the Lasinski Report or the case record why Mr. Lasinski assumes the ChromeGuard study may

²¹⁰ GOOG-RDGZ-00188469-491 at 469.

²¹¹ Lasinski Report, ¶ 92.

²¹² See “About conversion tracking,” Google Ads Help, available at <https://support.google.com/google-ads/answer/1722022>.

²¹³ See “Set up conversions from Firebase or App Attribution Partners for App campaigns for engagement,” Google Ads Help, available at <https://support.google.com/google-ads/answer/9260620>; “About tracking app conversions with an App Attribution Partner,” Google Ads Help, available at <https://support.google.com/google-ads/answer/12961402?hl=en>. See also “Google AdMob ad revenue attribution configuration,” AppsFlyer Help Center, May 14, 2023, available at <https://support.appsflyer.com/hc/en-us/articles/360006951817-Google-AdMob-ad-revenue-attribution-configuration>.

²¹⁴ GOOG-RDGZ-00056514-531 at 516.

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be used to estimate [REDACTED]

[REDACTED] 215

98. Mr. Lasinski relies on the ChromeGuard study to estimate [REDACTED]

[REDACTED]

[REDACTED].²¹⁶ However, I understand that Google's ChromeGuard study measured the impact of blocking all third-party cookies in Chrome's Incognito mode on Google's revenue.²¹⁷ As such, I understand that the analysis in the ChromeGuard study evaluates [REDACTED]

[REDACTED]. Mr. Lasinski fails to provide a basis for why the ChromeGuard study's methodology or findings are at all relevant to his analysis in this matter.

99. I understand that Google's [REDACTED]

[REDACTED], [REDACTED]

[REDACTED] Furthermore, the [REDACTED] that Mr. Lasinski relies on demonstrates that the revenue composition of [REDACTED]

[REDACTED], [REDACTED]

[REDACTED].²¹⁹ Therefore, Mr. Lasinski's use of [REDACTED]

215

[REDACTED] GOOG-RDGZ-00196222-259 at 244.

²¹⁷ Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, p. 16.

²¹⁸ GOOG-RDGZ-00188469-491 at 469-470.

²¹⁸ See GOOG-RDGZ-00188768, tab "Matrix," (

²¹⁹ GOOG-RDGZ-00188768, tab [REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED] . Further, as I explain in **Section V.A**,

[REDACTED]

[REDACTED]

[REDACTED]

100. Therefore, Mr. Lasinski's methodology to calculate disgorgement of profit for AdMob and Ad Manager incorrectly attributes revenue from conversion-based autobidding to conversion measurement, a service that Google offers for free to app developers and advertisers. As a result, Mr. Lasinski's methodology is unsupported and fails to measure any profit that results from the alleged wrongful conduct.

C. Mr. Lasinski's Calculation of Disgorgement of Profit Damages Overstates Google Revenue Attributable to sWAA-Off Users and Data

1. Mr. Lasinski's estimates for the share of revenue from signed-in users is inaccurate and irrelevant

101. Even assuming *arguendo* that Mr. Lasinski's choice to [REDACTED]

[REDACTED]

[REDACTED] his methodology to estimate "Share of Revenue from Signed-In Users" lacks support. Mr. Lasinski estimates this factor from a Google internal analysis entitled

²²⁰ "How AdMob works," Google AdMob Help, available at <https://support.google.com/admob/answer/7356092?hl=en>.

²²¹ "Advertising with Google Ad Manager," Google Ad Manager Help, available at <https://support.google.com/admanager/answer/6022000?hl=en>.

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[REDACTED]²²² which I understand analyzed the [REDACTED].²²³ Mr. Lasinski's calculation and his reliance on the [REDACTED] suffer from multiple flaws, including (i) a misplaced focus on European—rather than U.S.—user patterns and revenue and (ii) a failure to measure the impact of changes to the sWAA setting that is at issue in this matter. In part because of these flaws, Mr. Lasinski overestimates any disgorgement of profit damages.

102. Mr. Lasinski acknowledges that the Impact Tracker Model was specific to Europe.²²⁴ Inferences about user patterns and revenue trends in Europe may not be applicable to the U.S. For instance, the share of Android operating system in Europe is 67.2 percent, compared to 40.5 percent in the U.S. as of 2021.²²⁵ This marked difference in mobile operating system market share suggests that usage of Google services might differ between the two geographies. Mr. Lasinski makes no effort to determine whether his assumption regarding the share of revenue from signed-in users is accurate.

103. Further, I understand that the [REDACTED] measured the impact to Google's [REDACTED]²²⁶ [REDACTED]

²²² GOOG-RDGZ-00188768, tab "Matrix." *See also* Lasinski Report, Schedule 15.1. [REDACTED]

²²³ Lasinski Report, ¶¶ 51, 60; GOOG-RDGZ-00188655; GOOG-RDGZ-00188768, tab "Summary." Note that Mr. Lasinski refers to GAP as "GAIA Ads Personalization." "GAIA" refers to Google Accounts and ID Administration, which I understand is Google's primary identifier for any particular signed-in user across all Google products. *See* "Cloud Connect: Google Apps," Google Help Center, available at https://www.google.com/support/enterprise/static/gsa/docs/admin/70/admin_console_help/cloud_google_apps.html.

²²⁴ Lasinski Report, ¶ 60.

²²⁵ "Market share of leading mobile operating systems in Europe from 2010 to 2021," Statista, January 2022, available at <https://www.statista.com/statistics/639928/market-share-mobile-operating-systems-eu/>; "Market share of mobile operating systems in the United States from January 2012 to March 2023," Statista, March 2023, available at <https://www.statista.com/statistics/272700/market-share-held-by-mobile-operating-systems-in-the-us-since-2009/>. For the United States, the market share as of December 2021 is used.

²²⁶ GOOG-RDGZ-00188655; GOOG-RDGZ-00188768, tab "Summary."

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| Topic | Percentage |
|------------------------------------|------------|
| The concept of a 'smart city' | 85% |
| Smart cities in the news media | 75% |
| Smart cities in the government | 70% |
| Smart cities in the private sector | 65% |
| Smart cities in the academic world | 60% |
| Smart cities in the public sector | 55% |
| Smart cities in the private sector | 50% |
| Smart cities in the public sector | 45% |
| Smart cities in the private sector | 40% |

2. *Mr. Lasinski's methodology for estimating revenue attributable to sWAA-off accounts would overstate damages*

104. When calculating the revenue attributable to sWAA-off users, Mr. Lasinski fails to use data on ads traffic by sWAA-off users that Google provided. Instead, he simply multiplies the proportion of the number of sWAA-off accounts to the number of active accounts to the respective App Promo, AdMob, and Ad Manager revenue. As a result, Mr. Lasinski assumes that sWAA-off accounts generate the same level of revenue per account compared to sWAA-on accounts. [REDACTED]

Google's internal research has also found that

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²²⁷ Fair Deposition, pp. 180:12–181:15.

²²⁸ If a user has set sWAA off, they will not receive personalized ads. However, even if a user has set sWAA on, if they set GAP off, then they also would not receive personalized ads. *Anibal Rodriguez and Julie Anna Muniz, individually and on behalf of all other similarly situated, vs. Google LLC, et al.*, Defendant Google LLC’s Fourth Supplemental Responses and Objections to Plaintiffs’ Interrogatories, Set One, 3:20-cv-04688, November 5, 2021 (“Interrogatory Response Set One”), Fourth Supplemental Response to Interrogatory No. 1, pp. 23–24; Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, p. 15.

229 See Figure 1 above.

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[REDACTED] As I discuss in **Section IX.A**, when accounting for sWAA-off traffic volume, Mr. Lasinski attributes a share of revenue from sWAA-off users ranging between [REDACTED]

[REDACTED]²³¹ but this share is likely much lower. As I discuss above, the share of revenue attributable to sWAA-off accounts from March 2022 and May 2022 would fall from [REDACTED]

[REDACTED])²³² to [REDACTED]
[REDACTED] or [REDACTED]

when adjusting for ad engagement.²³³ Based on these data, I have adjusted Mr. Lasinski's damages analysis to illustrate [REDACTED]

[REDACTED] from sWAA-off users in **Section IX.E** below.

D. Mr. Lasinski's Calculation of Disgorgement of Profit Damages Underestimates Google's Costs

105. I understand from counsel that a disgorgement of profit damages calculation should consider net profit after accounting for all relevant costs associated with generating the revenue associated with alleged wrongful conduct.²³⁴ Mr. Lasinski's calculation of disgorgement of profit damages [REDACTED], and fails to [REDACTED]

²³⁰ GOOG-RDGZ-00046896-933 at 903.

²³¹ Lasinski Report, Schedule 13.1.

²³² Mr. Lasinski adjusts App Promo, AdMob, and Ad Manager revenue in 2022 by 13.87 percent, which is Mr. Lasinski's estimate of the average for full-year 2022. Lasinski Report, Schedule 13.1.

²³³ See **Figure 1**.

²³⁴ See also "Liu v. SEC: Supreme Court Affirms SEC's Disgorgement Authority But Imposes Limitations," White & Case, June 24, 2020, available at <https://www.whitecase.com/insight-alert/liu-v-sec-supreme-court-affirms-secs-disgorgement-authority-imposes-limitations> (The Supreme Court held that the disgorgement awards should be "capped to the wrongdoer's net profits" and "rather than requiring wrongdoers to disgorge their total ill-gotten proceeds, lower courts must now deduct any legitimate business expenses from the amount of ill-gotten gains in order to calculate the amount eligible for disgorgement").

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Mr. Lasinski's disgorgement of profit damages calculations inappropriately ignore [REDACTED] [REDACTED]. By ignoring these costs, Mr. Lasinski improperly inflates his disgorgement of profit damages estimate.

106. Based on my review, [REDACTED]

[REDACTED]

[REDACTED].²³⁶ [REDACTED]

[REDACTED]

[REDACTED],²³⁷ [REDACTED]

[REDACTED].²³⁸ **Figure 2** below

summarizes [REDACTED] and [REDACTED] for which Mr. Lasinski failed to consider.²³⁹ Operating profit for [REDACTED] ranged from [REDACTED] percent and [REDACTED] percent of net revenue and operating profit for [REDACTED] ranged from [REDACTED] and [REDACTED] of net revenue. Therefore, by using net revenue instead of operating profit, Mr. Lasinski's disgorgement of profit damages are substantially inflated.

²³⁵ Lasinski Report, p. 1 (stating that Mr. Lasinski's disgorgement of profit damages are "measured in revenue [REDACTED] [REDACTED]).

²³⁶ [REDACTED] Lasinski Report, ¶ 106.

²³⁷ GOOG-RDGZ-00184247; GOOG-RDGZ-00185744.

Langner Deposition, p. 224:14–18.

Wilkinson, Amy, and Nick Hubbard, "Google's Global Business Organization: Managing Innovation at Scale," 2020, available at <https://www.gsb.stanford.edu/faculty-research/case-studies/googles-global-business-organization-managing-innovation-scale>.

²³⁸ [REDACTED] See also Langner Deposition, p. 226:14–18.

²³⁹ GOOG-RDGZ-00187666; GOOG-RDGZ-00187665.

²³⁹ For detailed breakdown of the costs, see **Exhibits 2A–2B**.

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Figure 2²⁴⁰



107. Based on his understanding from an undisclosed conversation with Mr. Hochman, Mr. Lasinski claims that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED].²⁴¹ It is unclear how Mr. Lasinski developed this assumption. Mr. Hochman repeats this assumption but also does not explain how he developed it.²⁴² In fact, Google would likely reduce its firm-wide expenses in the but-for world envisioned by Mr. Lasinski where Google would not generate any revenue from the alleged wrongful conduct.²⁴³ In other words, Google would be in a new “equilibrium” and would change its fixed

²⁴⁰ GOOG-RDGZ-00184247; GOOG-RDGZ-00185744; GOOG-RDGZ-00187666; GOOG-RDGZ-00187665.

²⁴¹ Lasinski Report, ¶ 85, footnote 156.

²⁴² Hochman Report, ¶ 269.

²⁴³ As I discuss in **Section IX.B.1** above, [REDACTED]
[REDACTED]

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costs and investments commensurately. Mr. Lasinski fails to provide any economically reasonable justification for ignoring Google's own profit and loss statements. I have adjusted Mr. Lasinski's damages analysis to reflect operating expenses in **Section IX.E** below.

E. Correcting Certain Flaws in Mr. Lasinski's Methodology Would Substantially Lower His Disgorgement of Profit Damages Estimates

108. In this section, I correct certain of the errors in Mr. Lasinski's disgorgement of profit damages estimates using available data, putting aside fundamental flaws that invalidate this approach to disgorgement of profit damages (e.g., Mr. Lasinski's misconception that Google earns revenue from conversion measurement). These recalculations take Mr. Lasinski's methodology largely at face value and provide illustrative estimates of the potential impact of certain of the critiques that I discuss above.²⁴⁴

1. Correcting Mr. Lasinski's methodology for estimating revenue attributable to sWAA-off accounts

109. As I discuss in **Section IX.A** above, Mr. Lasinski focuses on [REDACTED] and fails to use data on [REDACTED] that Google produced.

As I discuss above, the share of revenue attributable to sWAA-off accounts from March 2022 and May 2022 would fall from approximately [REDACTED]
[REDACTED] to [REDACTED]
[REDACTED] or [REDACTED]

²⁴⁴ To be clear, it is not my opinion that there are any class-wide damages in this matter. But, if the Court were to accept Mr. Lasinski's damages framework and grant disgorgement of profit damages associated with the revenue that Mr. Lasinski incorrectly characterizes as revenue from conversion measurement, then Mr. Lasinski's damages estimates would require certain adjustments to correct methodological errors. The calculations presented here are illustrative estimates of such corrections.

²⁴⁵ [REDACTED]

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110.

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2. *Correcting for costs which Mr. Lasinski fails to consider*

111.

²⁴⁶ See **Figure 1**.

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was 44.89 percent of sWAA-off accounts' share of total accounts on average during this period.

²⁴⁸ See Exhibit 4D.

²⁴⁹ See Exhibit 4E.

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| Topic | Percentage |
|-------------------------------|------------|
| Smart homes | 95 |
| Smart cities | 95 |
| Smart transportation | 95 |
| Smart energy | 95 |
| Smart waste management | 95 |
| Smart agriculture | 95 |
| Smart healthcare | 95 |
| Smart water management | 95 |
| Smart manufacturing | 95 |
| The concept of a 'smart city' | 60 |

112.

[REDACTED]

[REDACTED]

[REDACTED]

²⁵⁰ As I explain in **Section IX.D**, Google would reduce its firm-wide expenses in the but-for world envisioned by Mr. Lasinski where Google would not generate any revenue from the alleged wrongful conduct.

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3. *Correcting Mr. Lasinski's methodology for estimating revenue attributable to sWAA off accounts and costs he fails to consider*

113. I next calculate illustrative disgorgement of profit damages by applying both corrections above. [REDACTED]

114. Finally, as I discuss in **Section VI** above, Mr. Lasinski fails to consider or adjust for limitations to Google’s ability to measure information from users of iOS 14 and beyond.

Given that iOS 14 was launched in September 2020,²⁵¹ I apply further adjustments to Mr. Lasinski's disgorgement of profit damages in 2021 and 2022 to reflect the market share of iOS in mobile operating systems.²⁵² In particular, I apply reductions of 58.6 percent and 56.7 percent to

²⁵¹ “iOS 14 is available today,” Apple, September 16, 2020, available at <https://www.apple.com/newsroom/2020/09/ios-14-is-available-today/>.

²⁵² “Market share of mobile operating systems in the United States from January 2012 to March 2023,” Statista, March 2023, available at <https://www.statista.com/statistics/272700/market-share-held-by-mobile-operating-systems-in-the-us-since-2009/>. I apply these adjustments for illustrative purposes. It is possible that some devices running iOS may not have been updated to iOS 14 in 2021 and 2022.

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disgorgement of profit damages for 2021 and 2022, respectively.²⁵³ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²⁵⁴ A summary of the adjustments I make to Mr. Lasinski's disgorgement of profit damages is shown in **Exhibit 8**.

X. MR. LASINSKI'S METHODOLOGY FOR CALCULATING "ACTUAL" DAMAGES IS UNRELIABLE AND WOULD OVERSTATE DAMAGES

115. Mr. Lasinski claims that "actual damages can be determined as a function of the payments necessary to incentivize an individual to knowingly surrender the choice to keep activity on mobile apps private and allow an organization to track app activity data."²⁵⁵ He further opines that "the baseline payment to Screenwise Panel participants of \$3 per month for using a Screenwise meter app on a single mobile device represents a conservative indicator of the monthly payment necessary for an individual to knowingly surrender the choice to keep their app activity private and allow Google to track all app activity data, regardless of that individual's WAA or sWAA settings."²⁵⁶ He claims that this \$3 payment, applied [REDACTED]

²⁵³ See **Exhibits 7A–7C**.

²⁵⁴ To reiterate, I do not agree with or endorse Mr. Lasinski's damages methodology, and these recalculations should not indicate otherwise.

²⁵⁵ Lasinski Report, ¶ 130.

²⁵⁶ Lasinski Report, ¶ 131.

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[REDACTED] .²⁵⁷

116. In this section, I show that Mr. Lasinski's methodology fails to calculate class-wide "actual" damages because it does not represent an economically relevant measure of any purported harm from the alleged wrongful conduct. Even if Mr. Lasinski's methodology was a conceptually valid measure of "actual" damages, it does not provide an adequate measure of the alleged harm suffered by putative class members due to the alleged wrongful conduct because it fails to consider the value of data in other data-sharing transactions in which the putative class members may have engaged. Moreover, Mr. Lasinski's "actual" damages methodology fails to appropriately measure class-wide damages in this matter because it includes many unharmed putative class members whose traffic resulted in no conversion events and/or no ad interactions, thereby resulting in no allegedly inappropriate data collection.

117. Even ignoring the prior issues *arguendo*, Mr. Lasinski's estimation of the amount of "actual" damages is also unreliable and speculative because: (1) it fails to measure actual economic harm alleged by Plaintiffs; (2) it fails to consider the value of data in other data sharing transactions in which the putative class members may have engaged; (3) it fails to exclude users who did not see or interact with an ad while having sWAA off; (4) it fails to account for differences between the data at issue in this matter and the data and other activities for which Screenwise participants are compensated, even under the assumption that the Plaintiffs suffered economic harm; (5) it fails to account for differences in putative class members' valuation of their personal data and online privacy; (6) it makes an erroneous and oversimplifying assumption about the number of users who switched the options for sWAA; (7) it relies on other irrelevant

²⁵⁷ Lasinski Report, ¶ 131.

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examples of users' willingness to pay to prevent data collection and research organizations' payments for data collection that do not measure the value of the data at issue in this matter; (8) it lacks any economic rationale for estimating the size of the proposed class as the number of purported "Class Member Devices;" and (9) it provides an unreliable and overstated number of "Class Member Devices" because it ignores changes to iOS policies and accounts with minimal or no activity.

A. Mr. Lasinski's "Actual" Damages Methodology Fails to Measure Actual Harm

118. I understand from counsel that "actual" damages for invasion of privacy presume, and compensate for, actual harm arising from the alleged wrongful conduct, *e.g.*, emotional distress. Applied to this matter, I understand Plaintiffs' allegations could be associated with emotional distress from alleged invasion of privacy.

119. In my review of the Lasinski Report, I have seen no evidence or indication that Mr. Lasinski's analysis attempts to measure or quantify actual harm experienced by any of the putative class members in the form of emotional distress. In fact, the testimony of named Plaintiffs corroborates that there was no such harm. If Plaintiffs had been harmed, one would expect that they would change their behavior and interactions with mobile apps using GA4F as a result of learning about the alleged wrongful conduct. However, as I discuss in **Section VII**, my review of the named Plaintiffs' testimony shows that these Plaintiffs did not alter their behavior in terms of their interactions with their respective mobile devices and mobile apps that may have used GA4F. For example, Mr. Cataldo could not identify a single behavioral change that he implemented as a result of this understanding;²⁵⁸ Mr. Santiago continued to use the same apps in

²⁵⁸ Cataldo Deposition, pp. 42:19–43:25.

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his smartphone after learning about the alleged wrongful conduct;²⁵⁹ Mr. Rodriguez chose to create another Gmail account instead of using a different provider because “it’s easier to do a Gmail”²⁶⁰ and he did not change his behaviors interacting with apps—nor did he advise his son to do so—other than turning WAA off,²⁶¹ and Ms. Harvey continued to use and create new Gmail accounts²⁶² and she did not remember deleting any apps, researching whether any apps used GA4F, or using any apps differently as a result of learning about the alleged wrongful conduct.²⁶³

120. Moreover, from an economic perspective, sWAA-off conversion measurement data are merely aggregate counts of certain app activity that Google provides to a third-party app developer. [REDACTED]

[REDACTED]

[REDACTED] Mr. Lasinski has not measured the value of emotional distress or the value of the data that were allegedly stolen.

B. Mr. Lasinski Fails to Consider the Value of Data in Other Data Sharing Transactions in Which the Putative Class Members May Have Engaged

121. As a conceptual matter, economic damages measure “the difference between the plaintiff’s economic position if the harmful event had not occurred and the plaintiff’s actual economic position.”²⁶⁵ Mr. Lasinski offers no precise characterization of putative class members’

²⁵⁹ Santiago Deposition, pp. 162:11–20, 176:15–178:12, 180:1–11.

²⁶⁰ Rodriguez Deposition, pp. 311:8–313:9.

²⁶¹ Rodriguez Deposition, pp. 327:2–15, 329:11–330:6.

²⁶² Harvey Deposition, pp. 118:23–119:12.

²⁶³ Harvey Deposition, pp. 244:16–245:1; 248:13–19.

²⁶⁴ Interrogatory Response Set Six, Supplemental Response to Interrogatory No. 17, p. 14. [REDACTED]

²⁶⁵ Allen, Mark A., Robert E. Hall, and Victoria A. Lazear, “Reference Guide on Estimation of Economic Damages,” *Reference Manual on Scientific Evidence*, Third Edition, 2011, pp. 425–502.

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economic position absent the alleged wrongful conduct. When referring to the basis for Plaintiffs' claim for "actual" damages, he merely states that he understands from Plaintiffs' counsel that this type of monetary relief is available to Plaintiffs.²⁶⁶

122. Based on Mr. Lasinski's calculation of "actual" damages, his implied characterization of the but-for world, *i.e.*, putative class members' position absent the alleged wrongful conduct, appears to be that the data at issue would have never been collected by Google and used for conversion measurement or providing analytics services.

123. However, I understand that, in many situations, there are already other entities collecting the same or similar information as the data at issue in this matter. For example, Mr. Ganem testified that third parties also provide similar services,²⁶⁷ and Google offers instructions on how to set up conversion measurement and analytics measurement using many other providers such as AppsFlyer, Adjust, Singular, Kochava, and Branch.²⁶⁸ [REDACTED]

[REDACTED]
[REDACTED] I am not aware that any of these third parties provide any compensation or consideration to users in such transactions or data collection. Mr. Lasinski fails to consider the possibility that, in a but-for world in which Google does not provide conversion measurement or analytics measurement services using the data at issue in this matter, another party would provide similar services to app developers and publishers without generating any compensation or disbursement to users. As a result, putative class members' financial position would be unchanged in the but-for world, and actual economic damages would be zero.

²⁶⁶ Lasinski Report, ¶ 69.

²⁶⁷ See Ganem Deposition, pp. 27:23–28:4.

²⁶⁸ See "Set up conversions from Firebase or App Attribution Partners for App campaigns for engagement," Google Ads Help, available at <https://support.google.com/google-ads/answer/9260620>.

²⁶⁹ GOOG-RDGZ-00056514-531 at 516.

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124. Similarly, in the but-for world, it is reasonable to expect that app developers would still be willing to pay for the services offered by Google through Firebase and GA4F and that a different entity than Google would supply such services and collect similar data on putative class members’ activity to provide app developers and advertisers with similar conversion measurement and bookkeeping functions. In fact, Firebase was originally not part of Google, but an independent company that Google acquired in 2014.²⁷⁰

125. Therefore, Mr. Lasinski’s but-for world where putative class members’ data about their online activity are not collected is not reliable for the purposes of quantifying “actual” damages and would overstate any such damages.

C. Mr. Lasinski’s “Actual” Damages Fail to Exclude Users Who Did Not See or Interact with an Ad While Having sWAA Off

126. Mr. Lasinski’s methodology to calculate “actual” damages assumes that all of the almost [REDACTED] class members he estimates suffered damages as a result of the alleged wrongful conduct. This conclusion is incorrect and misleading.

127. I understand that Google’s receipt of the data at issue results from either the serving of an ad or certain events or actions taken by putative class members on their mobile devices such as interacting with an ad served by Google, thereby triggering a conversion measurement event.²⁷¹ It is likely, however, that certain putative class members did not see or

²⁷⁰ Tamplin, James, “Firebase is Joining Google!,” Firebase, October 21, 2014, available at <https://firebase.blog/posts/2014/10/firebase-is-joining-google>.

²⁷¹ See Interrogatory Response Set One, Fourth Supplemental Response to Interrogatory No. 1, p. 19 [REDACTED]

[REDACTED]). See also “Events,” Google Tags, available at <https://developers.google.com/tag-platform/devguides/events>.

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interact with an ad while having sWAA turned off and therefore did not generate the data at issue, which would imply “actual” damages could not have occurred.

128. Mr. Lasinski’s methodology fails to identify or exclude such users in any way. His calculations assume that any putative class member who ever had sWAA off on any mobile device during the proposed class period suffered “actual” damages in the same measure for each of their devices. I understand that certain accounts that may be logged in are used very rarely such that they may be “Active” or “signed-in” accounts in Google’s records but have little to no ad engagement or traffic at all, thereby resulting in little to no conversion activity.²⁷² There are approximately [REDACTED] U.S.-based Google accounts,²⁷³ and Mr. Lasinski’s estimate of the number of internet users in the U.S. is 273 million.²⁷⁴ This means there are approximately [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 275 [REDACTED]
[REDACTED] [REDACTED]
[REDACTED]

129. As a result, Mr. Lasinski’s methodology to calculate “actual” damages is unreliable because it includes numerous unharmed putative class members with no relevant activity and data collection.

²⁷² For example, named Plaintiff Mr. Rodriguez testified that he has twelve Google accounts, some of which he “[doesn’t] really use,” some of which he uses only as “spoof” accounts to create accounts on other websites, some that he opened for the purposes of creating YouTube videos, and some that he created for his sons. *See Rodriguez Deposition*, pp. 59:3–75:5, 132:7–9.

²⁷³ GOOG-RDGZ-00187010, tab “sWAA” (showing 987 million U.S. accounts active at any time between July 27, 2016 and July 27, 2020).

²⁷⁴ Lasinski Report, ¶ 168.

²⁷⁵ Lasinski Report, ¶ 172.

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D. Mr. Lasinski Presents No Economic Basis for His “Actual” Damages Estimate of \$3 Per Class Member Device

130. Even assuming Mr. Lasinski’s methodology could measure “actual” damages, and ignoring his inclusion of unharmed putative class members, Mr. Lasinski fails to provide an economic basis for why his \$3 per class member device measures on a class-wide basis the quantum of harm that putative class members may have suffered as a result of the alleged wrongful conduct.

131. Mr. Lasinski fails to provide any adequate foundation or economic analysis to support his claim that each putative class member suffered \$3 of “actual” damages per device. As a result, his methodology to quantify class-wide damages is unreliable.

132. Mr. Lasinski argues that “the baseline payment to Screenwise Panel participants of \$3 per month for using a Screenwise meter app on a single mobile device [including both smartphones and tablets] represents a conservative indicator of the monthly payment necessary for an individual to knowingly surrender the choice to keep app activity private and allow Google to track app activity data, regardless of that individual’s WAA or sWAA settings.”²⁷⁶ He adds that “[w]hile the Screenwise compensation structure applies this \$3 payment per device per month, it is my opinion that actual damages through December 2022 can be conservatively measured by applying this \$3 payment on a one-time basis to the number of Class Member Devices.”²⁷⁷

133. However, Mr. Lasinski does not explain why he chose this amount. For example, his only attempt at connecting the amount of the Screenwise payment to the alleged harm in this

²⁷⁶ Lasinski Report, ¶ 131.

²⁷⁷ Lasinski Report, ¶ 131.

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matter is his claim that this \$3 payment represents a payment necessary for an individual to surrender the privacy of their app activity to Google regardless of their WAA settings. However, this is at best a tenuous similarity between the alleged wrongful conduct and the relationship between Screenwise and its panelists. As I explain below, tracking app activity is only a small fraction of the activity of Screenwise panelists, and Mr. Lasinski makes no attempt to explain why these two activities are comparable or why the value of the data collected from Screenwise panelists is comparable to the value of the data at issue in this matter.

134. Furthermore, Mr. Lasinski provides no explanation or rationale to apply the monthly \$3 payment from Screenwise to calculate class-wide damages in this matter.

135. Similarly, Mr. Lasinski provides a description of other payments to internet users related to the tracking of online activity, namely AT&T’s GigaPower campaign and payments from two other companies—Nielsen and SavvyConnect—to participants in their respective panels or applications.²⁷⁸ However, he provides no comparison to the data at issue or to Plaintiffs’ allegations that would suggest these amounts may be an adequate measure of actual harm in this matter. As I explain below, none of these payments are an appropriate measure of any purported actual harm in this matter.

1. Mr. Lasinski fails to distinguish the data at issue from the data collected by Screenwise and other requirements imposed on Screenwise panelists

136. The payment that Screenwise panelists receive as compensation for their participation most likely overstates the value of app activity data privacy for an individual. Even if the \$3 per month Screenwise payment were an appropriate starting point for “actual” damages,

²⁷⁸ Lasinski Report, ¶¶ 144, 148, 150.

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Mr. Lasinski would need to reduce this value to adjust for several factors that set the data associated with the alleged wrongful conduct in this matter apart from data collection and other requirements associated with participation in Screenwise—factors that reasonably increase the value and cost of Screenwise data collection. These include (i) Screenwise collecting much more comprehensive data on its panelists than the data at issue in this case, (ii) Google’s ability to link Screenwise data to other sources and types of data, and (iii) behavioral requirements imposed by Screenwise on its panelists.

137. First, Screenwise panelists agree to send to Google a much more comprehensive set of data about their activity on a mobile device than just the data at issue in this matter (*i.e.*, mobile web and app activity data).²⁷⁹ For example, the data collected by Screenwise include all browsing activity, URL data, IP addresses of visited websites, the length of time spent in each website; information about the use of telephone, email, and text messages; and cookies or other identifiers from a browser.²⁸⁰ Similarly, Screenwise collects other types of data about the user’s device such as device identifiers, location data, data from the device’s motion sensors, data and storage use, battery status, and information about Wi-Fi networks that the device is connected to.²⁸¹ These data are much more comprehensive than the at-issue data in this matter, which Mr. Lasinski fails to consider.

138. Second, Google can link the data collected by Screenwise to other sources and types of data that are not available from putative class members through the data associated with the alleged wrongful conduct in this matter. This includes, for example, audio data from the

²⁷⁹ Mr. Lasinski also acknowledges that participants in the Screenwise Panel “knowingly allow Google to *track all online activity* on the device.” Lasinski Report, ¶ 151, emphasis added.

²⁸⁰ “Google Panel Privacy Policy,” Ipsos Screenwise Panel, available at <https://screenwisepanel.com/google-panel-privacy-policy>.

²⁸¹ “Google Panel Privacy Policy,” Ipsos Screenwise Panel, available at <https://screenwisepanel.com/google-panel-privacy-policy>.

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Screenwise TV meter,²⁸² information about other devices connected to the same network as the user's device, and information about other accounts used on the same device.²⁸³ This also includes detailed demographic and identifying data collected upon registration to Screenwise and from other surveys that panelists may fill out during their participation. These survey data may include full name; home and work addresses; phone numbers; email addresses; and demographic information about the panelist and other members of their household, such as age, gender, race, ethnicity, languages spoken, education, marital status, personal income, household income, number of children, and the total number of people living in the household.²⁸⁴ While panelists may be compensated separately for some of these data, such as for the use of the TV meter, the ability to link these data across a single user's devices increases the total value of those data.²⁸⁵

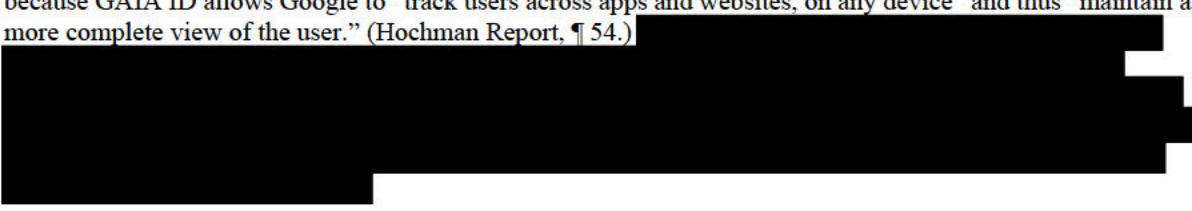
139. Third, Screenwise panelists receive compensation not only for sharing their web and app activity data. They also receive compensation for spending their time and effort on certain activities such as registering for the panel, filling out surveys, and installing and keeping the meter apps on their mobile device. For example, the Screenwise policies specify that participants may be asked to log into their Google accounts regularly and confirm that the

²⁸² “Google Panel Privacy Policy,” Ipsos Screenwise Panel, available at <https://screenwisepanel.com/google-panel-privacy-policy> (“The TV Meter has a microphone that, when enabled, captures all nearby audio so that Google can determine what programs are being watched based on the audio coming from the TV. We will seek your permission before collecting audio data. You are responsible for informing non-panelists, including visitors, of this metering.”).

²⁸³ “Google Panel Privacy Policy,” Ipsos Screenwise Panel, available at <https://screenwisepanel.com/google-panel-privacy-policy>.

²⁸⁴ “Google Panel Privacy Policy,” Ipsos Screenwise Panel, available at <https://screenwisepanel.com/google-panel-privacy-policy>.

²⁸⁵ For example, Mr. Hochman, explains that data linked to Google's GAIA ID are more valuable to Google because GAIA ID allows Google to “track users across apps and websites, on any device” and thus “maintain a more complete view of the user.” (Hochman Report, ¶ 54.)



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information associated with their profile is up to date and accurate.²⁸⁶ Similarly, Screenwise imposes certain restrictions on the online activity of panelists. For example, panelists are not allowed to use ad-blockers or any kind of “do not track” features, turn location-reporting services off, or otherwise opt out of any kind of online advertising.²⁸⁷

140. In summary, even if the \$3 payment per mobile device from Screenwise were an appropriate starting point for “actual” damages in this matter, that figure would overestimate any measure of actual harm due to the alleged wrongful conduct because it ignores that the \$3 Screenwise payment compensates users for a multiplicity of data, activities, and restrictions that exceed the breadth of the data at issue in this matter.

2. *Mr. Lasinski ignores that not all putative class members are harmed equally because not all putative class members value their data equally*

141. Mr. Lasinski’s methodology assigns a value of \$3 of “actual” damages to each “Class Member Device.” Mr. Lasinski does not make clear whether he believes that every putative class member was harmed by the same amount or that this amount is a reasonable estimate of the average amount of “actual” damages suffered per putative class member. Regardless, neither of these interpretations would be consistent with economic principles and evidence.

142. I understand that Dr. Ghose, another expert for Google in this matter, opines that users’ preferences about data privacy vary not only across individuals but even over time for a given individual, with certain users being “unconcerned” about privacy, others being

²⁸⁶ “Google Panel Terms & Conditions,” Ipsos Screenwise Panel, available at <https://screenwisepanel.com/google-panel-terms-condition>.

²⁸⁷ “Google Panel Terms & Conditions,” Ipsos Screenwise Panel, available at <https://screenwisepanel.com/google-panel-terms-condition>.

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“fundamentalists” of privacy, and others being “pragmatists” who evaluate the costs and benefits of data collection.²⁸⁸

143. Therefore, the alleged harm associated with the collection of one unit of the data at issue is likely to vary across putative class members. Moreover, it is reasonable to expect that the amount of online activity will vary across putative class members and therefore so will the amount of data at issue that Google received for each of them, *e.g.*, conversion measurement events generated by GA4F.

144. Lastly, as I discuss above, users receive benefits or utility from a better ad-supported app experience as a result of Google’s activity. These benefits are also likely to vary across individuals or putative class members. It is even possible that some users may have not suffered a net economic harm because they value the benefits from Google’s receipt of the data at issue more than they value the alleged loss of their private data.

145. Therefore, “actual” damages as contemplated by Mr. Lasinski’s methodology would differ from one putative class member to another. However, Mr. Lasinski fails to account for the variability in the amount of data collected from different putative class members and also the variability in the economic benefit or harm that putative class members may have experienced by virtue of sharing their data. Therefore, Mr. Lasinski fails to consider this variation or to provide a methodology that estimates “actual” damages according to the harm suffered by different putative class members.

146. The distribution of online users’ valuations of their privacy and data can likely be described by an upward-sloping supply curve found in basic economics textbooks, where users

²⁸⁸ See Expert Rebuttal Report of Anindya Ghose, Ph.D., May 31, 2023, Section II.A..

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with a lower valuation of their data would demand a lower payment in exchange for sharing the data, but users with a higher valuation of their data would demand a higher price, such that the higher a single market price is, the more users—or “sellers”—would be willing to participate.²⁸⁹

147. Therefore, to accomplish the goal of selecting a panel that is representative of the online population at large, Screenwise must offer a high enough compensation to attract a large enough and varied enough pool of candidates to represent the overall online population. Any lower compensation may attract only a selected sample of panelists with a lower valuation on privacy. This means not only that the \$3 payment would overstate the average amount required to make online users agree to participate in the panel, but also that measuring different putative class members’ valuation of the data requires individualized inquiry.

3. *Mr. Lasinski makes an erroneous and oversimplifying assumption for putative class members who toggled between on/off options for sWAA*

148. Mr. Lasinski’s calculation of “actual” damages assumes that no meaningful fraction of putative class members switch their sWAA on/off status, *i.e.*, that the proportion of users with sWAA off is constant throughout the proposed class period.²⁹⁰ As a result, Mr. Lasinski estimates that “actual” damages are the same for every putative class member who had sWAA off at any time during the proposed class period. [REDACTED]

[REDACTED]

[REDACTED]

²⁸⁹ Hubbard, Glenn R., and Anthony Patrick O’Brien, “Microeconomics,” Seventh Edition, Pearson, 2019, pp. 82–86.

²⁹⁰ Lasinski Report, ¶¶ 47–49, 155.

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149. Figure 7 in the Lasinski Report shows that [REDACTED]

[REDACTED] The figure also shows that [REDACTED]

[REDACTED].²⁹¹ It follows that [REDACTED]

[REDACTED].²⁹² Though

these statistics apply to a subset of the proposed class period, these figures strongly suggest that [REDACTED]

If consumers choose their sWAA status in each month optimally, or nearly optimally, then these consumers are not harmed during months where sWAA is on. In these months, consumers have chosen to keep sWAA on because the benefits of doing so—for example, an improved user experience—exceed the costs. Treating such consumers as harmed during these months (as Mr. Lasinski does) ignores their own observed decisions and preferences. For example, one potential approach would be to prorate the \$3 per-device payment by the number of months during which each user opted into sWAA-off status.

150. Though Mr. Lasinski cites Google documents that purportedly [REDACTED]

[REDACTED]²⁹³ the evidence he cites fails to support this assumption. For example, Mr. Lasinski cites an email in which a Google employee indicates [REDACTED]

[REDACTED]²⁹⁴ But, this [REDACTED]

[REDACTED] Moreover, [REDACTED]

[REDACTED], [REDACTED] could switch their status over the

²⁹¹ [REDACTED]

²⁹² [REDACTED]

²⁹³ Lasinski Report, ¶ 47.

²⁹⁴ Lasinski Report, ¶ 47.

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[REDACTED].²⁹⁵ The actual number of accounts that switched their status at least once during the proposed class period likely falls somewhere in [REDACTED]
[REDACTED] but it is not necessarily the case that [REDACTED]
[REDACTED].

151. As a result of this omission, Mr. Lasinski's incorrect assessment of the likelihood that a user switches their sWAA on/off status causes him to fail to apportion "actual" damages to a reasonable estimate of how often a user had sWAA on, thus overstating damages.

E. Mr. Lasinski's Examples of Users' Willingness to Pay to Prevent Data Collection and Research Organizations' Payments for Data Collection Do Not Measure the Value of the Data at Issue

152. In addition to his analysis of the \$3 payment from Screenwise, Mr. Lasinski considers two other purported indicators of market payments related to tracking online activity: the AT&T Internet Preferences program, and payments from two companies—Nielsen and SavvyConnect—to participants in surveys or market research activities.²⁹⁶ Neither of these alternative indicators is appropriate in this matter. Mr. Lasinski also does not provide any further analysis as to why these programs and their related payments might provide any reliable measure of class-wide damages. He also offers no basis to choose one over the other, nor any basis for why he chose the Screenwise payment over them. In any case, none of these examples provides a reliable indicator of the amount of any "actual" damages in this case. As with the Screenwise payment, these alternative payments also involve a much broader set of data than those at issue

²⁹⁵ [REDACTED]

²⁹⁶ Lasinski Report, ¶¶ 132, 143–150.

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in this case, collect these data for different purposes, account for ancillary activities and not merely the passive collection of data, and fail to measure the value of emotional distress as I discuss in **Section X.A** above.

153. First, the Internet Preferences program essentially amounts to a discount that AT&T offered to its broadband internet customers (in a few select areas) in exchange for tracking their online activity to deliver tailored advertising.²⁹⁷ Customers could opt into a more expensive tier of AT&T's internet service that would exclude them from this data collection and subsequent advertising.²⁹⁸ However, as an internet service provider, AT&T has access to a unique set of demographic information from users as well as data across all of their devices and activity, regardless of whether or not they use a Google account.²⁹⁹

154. Similarly, neither Nielsen nor SavvyConnect made payments in exchange for data similar to those at issue in this case. These companies also collect detailed personal and demographic information about participants such as name, gender, and other demographic data.³⁰⁰ Moreover, these programs require participants to fill out information in their accounts,

²⁹⁷ Auerbach, David, "Privacy Is Becoming a Premium Service," March 31, 2015, Slate, available at <https://slate.com/technology/2015/03/at-t-gigapower-the-company-wants-you-to-pay-it-not-to-sell-your-data.html>. *See also* Brodkin, Jon, "AT&T's Plan to Watch Your Web Browsing—and What You Can Do About It?," ArsTechnica, March 27, 2015, available at <https://arstechnica.com/information-technology/2015/03/atts-plan-to-watch-your-web-browsing-and-what-you-can-do-about-it/>.

²⁹⁸ Brodkin, Jon, "AT&T's Plan to Watch Your Web Browsing—and What You Can Do About It?," ArsTechnica, March 27, 2015, available at <https://arstechnica.com/information-technology/2015/03/atts-plan-to-watch-your-web-browsing-and-what-you-can-do-about-it/>.

²⁹⁹ Auerbach, David, "Privacy Is Becoming a Premium Service," March 31, 2015, Slate, available at <https://slate.com/technology/2015/03/at-t-gigapower-the-company-wants-you-to-pay-it-not-to-sell-your-data.html>. *See also* Hall, Gina, "AT&T to halt gathering customers' web-browsing data, stop charging for an opt-out," October 3, 2016, The Business Journals, available at <https://www.bizjournals.com/bizjournals/news/2016/10/03/at-t-to-halt-gathering-customers-web-browsing-data.html>. *See also* Brodkin, Jon, "AT&T's Plan to Watch Your Web Browsing—and What You Can Do About It?," ArsTechnica, March 27, 2015, available at <https://arstechnica.com/information-technology/2015/03/atts-plan-to-watch-your-web-browsing-and-what-you-can-do-about-it/>.

³⁰⁰ The Nielsen Computer and Mobile Panel to which Mr. Lasinski cites states: "Download our safe and secure Nielsen app or computer software on your qualified devices. ... Answer our registration questions to tell us more about you, your household, and the devices you use." *See* "Nielsen Computer and Mobile Panel," Nielsen, available at <https://computermobilepanel.nielsen.com/ui/US/en/sdp/landing>.

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install tracking apps on their devices,³⁰¹ and responding to surveys to provide additional information. For example, the Nielsen mobile panel collects “information relating to your racial or ethnic origin, political opinions, religious or other similar beliefs, philosophical beliefs, health or medical conditions, or sexual orientation.”³⁰² Therefore, payments in exchange for these data and other activities do not represent a reliable or informative measure of “actual” damages in this matter. Reliance on these surveys renders Mr. Lasinski’s damages methodology flawed and unreliable (even aside from its various other flaws).

F. Mr. Lasinski Fails to Provide Sufficient Foundation or Economic Analysis for His Estimate of the Size of the Proposed Class

155. Mr. Lasinski arrives at his estimate of “actual” damages by multiplying the \$3 payment from Screenwise by his estimate of the size of the proposed class.³⁰³ However, his estimate of the size of the proposed class is unreliable and overstated.

1. There is no economic rationale for estimating the size of the proposed class as Mr. Lasinski’s number of Class Member Devices

156. Mr. Lasinski estimates the size of the proposed class as what he calls the number of “Class Member Devices, where a single Class Member Device represents a mobile device (smartphone or tablet) used with WAA/sWAA off at least once during the [proposed] Class Period through December 2022.”³⁰⁴

³⁰¹ The Nielsen Computer and Mobile Panel to which Mr. Lasinski cites states: “Download our safe and secure Nielsen app or computer software on your qualified devices. ... Answer our registration questions to tell us more about you, your household, and the devices you use.” *See “Nielsen Computer and Mobile Panel,”* Nielsen, available at <https://computermobilepanel.nielsen.com/ui/US/en/sdp/landing>.

³⁰² *See “Nielsen U.S. Panel Privacy Notice Summary,”* Nielsen, available at <https://computermobilepanel.nielsen.com/ui/US/en/privacypolicyen.html>. *See also “How it Works,”* Super Savvy, available at https://www.surveysavvy.com/how_it_works.

³⁰³ Lasinski Report, ¶ 161.

³⁰⁴ Lasinski Report, ¶ 152.

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157. There is no economic rationale to use the number of devices as the size of the putative class. While it is true that the Screenwise panel provides compensation to participants for each device they connect to the panel, this is consistent with the goal of incentivizing panelists to connect all of their devices to Screenwise in order to obtain a comprehensive picture of panelists' online activity. But, this is irrelevant as a measure of the size of the class or the amount of "actual" damages in this matter.

158. Mr. Lasinski defines "actual" damages "as a function of the payments necessary to incentivize an individual to knowingly surrender the choice to keep activity on mobile apps private and allow an organization to track app activity data."³⁰⁵ However, he does not provide any explanation for why class-wide damages should increase proportionally with the number of devices that putative class members use.

159. There is no reasonable economic rationale for class-wide damages to increase proportionally with what Mr. Lasinski calls the numbers of "Class Member Devices." For example, consider a scenario in which each putative class member owns exactly one Class Member Device: their primary smartphone running Android. On the other hand, if every putative class member were to split their online activity between their primary smartphone and a tablet purely for convenience (but made no other changes in their online activity), Mr. Lasinski's estimated "actual" damages would double. This is incorrect because putative class members would not suffer any additional harm in the latter scenario.

160. In fact, publicly available studies show that, while device usage may increase with ownership of additional devices, the increase in usage is less than proportional to the additional

³⁰⁵ Lasinski Report, ¶ 130.

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number of devices. For example, a study by market research companies show that the number of activities performed on a smartphone by users in the U.S. does not increase with the ownership of a second device, and it increases less than twofold when the user owns a fourth device.³⁰⁶ Another study shows that time spent on one device can simply be a substitute for time spent on another device and users are shifting some of their time previously spent on tablets to time spent on smartphones.³⁰⁷

161. Similarly, named Plaintiffs' depositions support the argument that online activity does not increase proportionally with device ownership and that users may seldom use secondary devices. For example, Ms. Harvey testified that she "had some tablets" that she was not sure she used at all, and that she owns a tablet that she used "for probably 10 minutes."³⁰⁸ Similarly, Mr. Cataldo testified that, besides his Pixel smartphone and a Blackberry, he "may have" a tablet at work that he "[hasn't] used in years."³⁰⁹ But, Mr. Lasinski's damages methodology would include damages for each of these barely-used devices. Therefore, Mr. Lasinski's methodology cannot provide a reliable estimate of class-wide "actual" damages.

2. *Mr. Lasinski's methodology cannot provide a reliable estimate of the number of Class Member Devices*

162. Even setting aside its conceptual flaws, Mr. Lasinski's quantification of the number of "Class Member Devices" is overstated and would therefore inflate "actual" damages.

³⁰⁶ See "Multiple device ownership means more smartphone usage," Kantar, September 23, 2021, available at <https://cdne.kantar.com/north-america/inspiration/technology/multiple-device-ownership-means-more-smartphone-usage>.

³⁰⁷ See "US Time Spent with Mobile 2019," eMarketer, May 30, 2019, available at <https://www.insiderintelligence.com/content/us-time-spent-with-mobile-2019>.

³⁰⁸ Harvey Deposition, pp. 138:6–140:10.

³⁰⁹ Cataldo Deposition, p. 69:2–9.

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163. First, as I discuss in **Section VI** above, Mr. Lasinski fails to exclude users with devices that did not allow Google to know sWAA-off status because of changes in Apple's policies when iOS 14 launched in September 2020. While Google may have received the data at issue for some of these users prior to the iOS 14 update, it is reasonable to expect that Google did not receive such data for a meaningful number of new smartphone users over that period, as smartphone penetration rates were still increasing in the U.S. through 2021.³¹⁰

164. Second, Mr. Lasinski adjusts his estimate of the number of putative class members by the 84.1 percent of smartphone users with a Gmail account based on Mr. Keegan's survey.³¹¹ However, neither Mr. Keegan nor Mr. Lasinski considers whether any of these users actually used their respective Gmail accounts actively during the proposed class period. Google recently announced that it will start deleting inactive accounts, which suggests that some users in fact do not actively use their Google accounts.³¹² However, Mr. Lasinski's calculation of "actual" damages increases by \$3 for each of these users because they are included in his calculation of the number of Class Member Devices. To the extent that some of these users have not actively used their Google accounts during the proposed class period, Mr. Lasinski's methodology would overstate "actual" damages.

XI. MR. LASINSKI'S METHODOLOGY FOR APPORTIONING DAMAGES IS UNRELIABLE

165. Mr. Lasinski proposes to apportion damages across the two classes based on Android and Apple operating systems, and his estimation of the proportion of users signed in on

³¹⁰ See "Percentage of U.S. adults who own a smartphone from 2011 to 2021," Statista, April 2021, available at <https://www.statista.com/statistics/219865/percentage-of-us-adults-who-own-a-smartphone/>.

³¹¹ Lasinski Report, ¶¶ 167–168.

³¹² Kricheli, Ruth, "Updating our inactive account policies," Google, May 16, 2023, available at <https://blog.google/technology/safety-security/updating-our-inactive-account-policies/>.

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each of these platforms.³¹³ He proposes two methods to apportion damages among members of each class: (1) based on the number of “sWAA-Off User Months;” or (2) based on the number of putative class members. He provides no rationale for offering two distinct apportionment methodologies, nor does he provide guidance as to why to choose one over the other. He also provides no rationale for why either of these methods would be appropriate for allocating damages in this matter. In other words, his “methodology” to allocate damages is limited to calculating two numbers and making the trivial statement that the total amount of damages can be divided by those numbers.

166. Neither of these methodologies would adequately apportion damages among putative class members because: (1) they are inconsistent with Mr. Lasinski’s proposed methodology to calculate “actual” damages—which is based on “Class Member Devices;” (2) they ignore heterogeneity among different putative class members with respect to the volume and quality of data received by Google; and (3) it provides an incomplete and unreliable methodology to estimate and attribute Mr. Lasinski’s estimated “sWAA-Off User Months” to putative class members.

A. Mr. Lasinski’s Proposed Methodology to Apportion Damages Among Putative Class Members Is Inconsistent with His Own Methodology to Calculate Damages

167. Mr. Lasinski proposes to apportion damages based on either the number of “sWAA-Off User Months” or the number of putative class members. However, he calculates putative-class-wide “actual” damages by applying a \$3 payment to the number of “Class Member Devices,” regardless of the number of months during which an account is in sWAA-off

³¹³ Lasinski Report, ¶ 164.

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status. This incongruence between Mr. Lasinski's methodologies to calculate and allocate damages reflects not only the general lack of support for his methodologies but also creates scenarios where putative class members could be vastly over- or undercompensated relative to their notional contribution to Mr. Lasinski's calculation of damages. For example, a putative class member who owned a single device through the entire proposed class period and had sWAA turned off the entire time would contribute \$3 to Mr. Lasinski's calculation of "actual" damages, while another putative class member who acquired a smartphone and a tablet for the first time in December 2022 and used those devices occasionally with sWAA off, would contribute \$6 to Mr. Lasinski's calculation of "actual" damages. However, these two putative class members would be compensated equally under Mr. Lasinski's "class member" method. But, the first putative class member, who contributed half as much to Mr. Lasinski's calculation of "actual" damages, would receive a compensation several times higher under Mr. Lasinski's "sWAA-Off User Months" method.

B. Mr. Lasinski's Methodology to Apportion Damages Ignores Heterogeneity Among Different Putative Class Members with Respect to the Volume and Quality of Data Received by Google

168. Both of Mr. Lasinski's methods of allocating damages fail to account for differences in the volume and quality of the data at issue that Google may have received and thus fail to compensate putative class members in proportion to either the "actual" damages they may have suffered or in proportion to their contribution to Google's profit allegedly subject to disgorgement. While Mr. Lasinski's "sWAA-Off User Months" methodology would seemingly increase a putative class member's allocation of damages based on a measure that may correlate with how long they used their mobile device(s) with sWAA off, this is only one of the many dimensions of this heterogeneity. Google likely would have received substantially more of the

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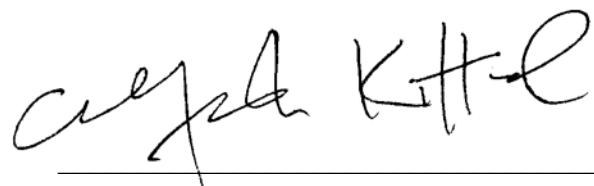
data at issue for some putative class members than others based on the type and amount of their activity while having sWAA off, *e.g.*, based on whether and how they may have interacted with ads that generated conversion measurement events. Neither of Mr. Lasinski's allocation methods consider users' levels of activity.

C. Mr. Lasinski's "sWAA-Off User Months" Methodology Is Incomplete and Unreliable

169. Mr. Lasinski claims that the total amount of either disgorgement of profit damages or "actual" damages "[could] be distributed to [putative] Class members in the claims administration process as a function of the number of sWAA-Off User Months deemed attributable to each [putative] Class member."³¹⁴

170. However, Mr. Lasinski provides no methodology to attribute "sWAA-Off User Months" to each putative class member or even any insight of how he or a claims administrator would accomplish this. Without a methodology to attribute his estimate of over three billion "sWAA-Off User Months" to putative class members, Mr. Lasinski fails to provide any method to allocate a specific amount of damages to each putative class member. As such, Mr. Lasinski's methodology to allocate damages is incomplete and inapplicable as proposed.

May 31, 2023



Christopher R. Knittel, Ph.D.

³¹⁴ Lasinski Report, ¶ 174.

APPENDIX A CURRICULUM VITAE

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WORKING PAPERS:

- Cole, Cassandra, Michael Droste, Christopher R. Knittel, Shanjun Li, and James H. Stock. "Policies for Electrifying the Light-Duty Vehicle Fleet in the United States."
- Dimanchev, Emil and Christopher R. Knittel. "Designing Climate Policy Mixes: Analytical and Energy Systems Modeling Approaches." Revisions requested from *The Energy Journal*.
- Burger, Scott P., Christopher R. Knittel, and Ignacio J. Perez-Arriaga. "Quantifying the Distributional Impacts of Rooftop Solar PV Adoption Under Net Energy Metering."

- Green, Tomas and Christopher R. Knittel. "Distributed Effects of Climate Policy: A Machine Learning Approach."
- Knittel, Christopher R. and Sam Stolper. "Using Machine Learning to Target Treatment: The Case of Household Energy Use." Second round of revisions requested from *The Economic Journal*.
- Knittel, Christopher R. and Bora Ozaltun. "What Does and Does Not Correlate with COVID-19 Death Rates."
- Knittel, Christopher R. and Elizabeth Murphy. "Generational Trends in Vehicle Ownership and Use: Are Millennials Any Different?" Revisions requested from *The Energy Journal*.
- Busse, Meghan, Christopher R. Knittel and Florian Zettelmeyer. "Did 'Cash for Clunkers' Deliver? The Consumer Effects of the Car Allowance Rebate System." Revisions requested from *The American Economic Journal: Economic Policy*.
- Busse, Meghan, Christopher R. Knittel and Florian Zettelmeyer. "Stranded Vehicles: The Incidence of Gasoline Taxes Through the Lens of Vehicle Values."

AWARDS, HONORS, AND GRANTS:

- National Science Foundation (with Anuradha Annaswamy and Ignacio Perez-Arriaga). 2014-2017, \$1,783,855
- Graham and Dodd Award of Excellence, from *Financial Analyst Journal*, 2010.
- Tom Mayer Distinguished Teaching Award, 2010
- Chancellor's Fellowship, UC Davis (one of five faculty members), 2008
- Barry D. McNutt Award for Excellence in Automotive Policy Analysis (with Jonathan Hughes and Dan Sperling), 2008
- National Science Foundation Grant (with Victor Stango), 2008-2010, \$240,000
- Chevron Bio-Fuel Research Grant, 2007-2008, \$127,000
- Chevron Bio-Fuel Research Grant, 2007-2008, \$77,000
- Chevron Bio-Fuel Research Grant (Co-PI), 2007-2009, \$370,000
- Woods Institute for the Environment Leadership Scholar Training, 2007
- Distinguished Paper, 2006 Academy of Finance
- University of California Energy Institute Research Grant, 2005-2006, \$50,000
- Best Paper Award for the 31st NBEA Conference
- ASUCD Excellence in Teaching Award, 2004
- University of California Energy Institute Research Grant, 2003
- Faculty Research Grant, UC Davis, 2002, 2003, 2004, 2005, 2006
- Institute of Governmental Affairs Junior Faculty Grant, 2002, 2003, 2004, 2005
- Junior Faculty Research Grant, Boston University, 2001
- Graduate Fellowship, University of California, Berkeley, 1997–1999
- Graduate Fellowship, University of California, Davis, 1994–1996
- Institute of Transportation Fellow, University of California, Davis, 1995–1996
- Student Commencement Speaker, California State University, Stanislaus, 1994

REFEREE SERVICES:

Agricultural Economics, American Economic Review, Bulletin of Economic Research, Census Bureau, Econometrica, Economic Inquiry, The Economic Journal, Economics Letters, Energy Economics, The Energy Journal, Energy Studies Review, European Economic Review, International Journal of Industrial Organization, International Journal

of Power and Energy Systems, Journal of Banking and Finance, The Journal of Business, Journal of Business and Economic Statistics, Journal of Economic Behavior and Organization, Journal of Economic Education, Journal of Economics and Management Strategy, Journal of Futures Markets, Journal of Industrial Economics, Journal Institutional and Theoretical Economics, Journal of Law and Economics, Journal of Political Economy, Politics and Economics, Quarterly Journal of Economics, Rand Journal of Economics, Resource and Energy Economics, Review of Economic Studies, Review of Economics and Statistics, Review of Industrial Organization, Review of Network Economics, Southern Economic Journal, Socio-Economic Planning Sciences, Utilities Policy, University of California Energy Institute Grant Program, NSF Grant Program

REGULATORY FILINGS:

- Arons, S.M., A.R. Brandt, M.A. Delucchi, A. Eggert, A.E. Farrell, B.K. Haya, J. Hughes, B.M. Jenkins, A.D. Jones, D.M. Kammen, S.R. Kaffka, C.R. Knittel, D.M. Lemoine, E.W. Martin, M.W. Melaina, J.M. Ogden, R.J. Plevin, D. Sperling, B.T. Turner, R.B. Williams, C. Yang, 2007. “A Low-Carbon Fuel Standard for California, Part 1: Technical Analysis.” Available Online: <http://www.lcfs.ucdavis.edu>.
- Brandt, A.R., A.E. Farrell, B.K. Haya, J. Hughes, B.M. Jenkins, A.D. Jones, D.M. Kammen, C.R. Knittel, M.W. Melaina, M. O’Hare, R.J. Plevin, D. Sperling, 2007. “A Low-Carbon Fuel Standard for California, Part 2: Policy Analysis.” Available Online: <http://www.lcfs.ucdavis.edu>.
- Peer Review Comments on AB 1493, California Environmental Protection Agency Air Resource Board, September 2004.
- “Comments on the Use of Computer Models for Merger Analysis in the Electricity Industry,” (Joint with Severin Borenstein and James Bushnell), Federal Energy Regulatory Commission. Docket No. PL98-6-000, June 1998.
- “A Cournot-Nash Equilibrium Analysis of the New Jersey Electricity Market,” December 1997. (Joint with Severin Borenstein and James Bushnell). Filed with the New Jersey Public Utility Commission as testimony on the potential for market power in a deregulated Pennsylvania-Jersey-Maryland Power Pool.

PH.D. AND M.A. COMMITTEES (FIRST JOB):

Harvard:

Shefali Khanna (on going)
Jing Li (MIT)

MIT:

Nestor Sepulveda (Nuclear Science, McKinsey)
Andre Besio (MA, Engie)
Bora (MA, Microsoft)
Benny Ng (MA, Microsoft)
Sruthi Davuluri (MA, E3)
Scott Burger (MIT)
Nick Hagerty (UCB)
Stephen Zoepf (MIT)
Ricardo Charles (MA, DOE)
Parisa Bastini (Cambridge University)

Donald MacKenzie (University of Washington)
Jennifer Peck (Swarthmore)

UC Davis:

Anson Soderbery (Purdue University)
Nick Sanders (chair, SIEPR Post Doc, Stanford University)
Chia-Wen Chen (chair, on-going)
Chenguang Li (University of Wisconsin)
Jonathan Hughes (chair, University of Colorado, Boulder)
Adib Bagh (University of Kentucky, Math and Economics)
Seungjoon Lee (Korean Insurance Research Institute)
Jason Lepore (chair, Cal Poly)
Wei-Min Hu (Peking University)
Byeongil Ahn (Gyeongsang University)
Konstantinos Metaxoglou (chair, Bates and White LLC)
Lan Li (University of Melbourne)
Neil Norman (Cornerstone Research)
Dae-Wook Kim (chair, Korean Institute for Industrial Economics and Trade)
Boston University:
Gustavo Genoni (2002, Finance, IAE, School of Business, Universidad Austral)
John Neumann (2003, Finance, St. John's University)

TEACHING:

- MIT
 - Energy Economics and Policy, MBA (10 times)
 - Rating: Mean 6.66/Median 7 (out of 7)
 - Sloan Rating: 4.8 out of 5
 - Energy Economics and Policy, Undergraduate (9 times)
 - Rating: Mean 6.66/Median 7 (out of 7)
 - Applied Economics for Manager, Executive MBAs (4 times)
 - Rating: Mean 6.44/Median 7 (out of 7)
 - Sloan Rating: 4.7 out of 5
- UC Davis
 - Graduate Empirical Industrial Organization (6 times)
 - Ratings: Mean 4.9 (out of 5)
 - Transportation Economics (4 times)
 - Ratings: Mean 4.7
 - Intermediate Microeconomics (1 time),
 - Ratings: Mean 4.8
 - Undergraduate Industrial Organization (9 times)
 - Ratings: Mean 4.8
- Boston University
 - Modeling Business Decision Making (3 times)
 - Ratings: 4.7 (out of 5)
 - Modeling Business Decision Making (honors, 2 times),
 - Ratings: 4.8

UNIVERSITY SERVICE:

MIT:

Variety of personnel committees
Executive Personnel Committee, 2020-present
Asia Business School Board of Governors, 2019-present
Energy Minor Oversight Committee, 2011-present
Energy Education Task Force, 2011-present
Executive Education Committee, 2018-2020

UC Davis:

2007-2008, Co-writer (with Jean VanderGheynst) of a proposal for a Graduate Program in "Energy Science and Technology" and "Energy Policy and Management"
2006-Present, Member, Energy Institute Steering Committee
2008, Founding Faculty Member, UC Davis Energy Institute
2005-2006, Hiring Committee and Interviewing Committee
2004-2005, Hiring Committee and Interviewing Committee
2002-2003, Hiring Committee and Interviewing Committee
2002-2007, Graduate Advisor
Oral committees: Dae-Wook Kim, Konstantinos Metaxoglou, Neil Norman (chair), Seungjoon Lee, Wei-Min Hu, Lan Li (ARE), Sunhwa Lee, Byeongil Ahn (ARE), Michele Amaral, David Ong, Adib Bagh, Jason Lepore, Bei Li, Chenguang Li (ARE), Tina Saitone (ARE), Carlo Russo (ARE), Sandhya Patlolla (ARE), Jon Hughes (TTP), Peter Huckfeldt, Kyungwon Rho, Nick Sanders, Chia-Wen Chen, Joeri de Witt (ARE), In-Sung Lee (TTP), Anson Soderbery, Nils Johnson (TTP), David McCollum (TTP)

Boston University:

2000-2001, Finance Hiring Committee and Interviewing Committee
1999-2000, Finance Hiring Committee

DEPOSITIONS AND LEGAL TESTIMONY IN THE LAST FOUR YEARS:

- *The People of the State of California vs. Vitol Inc.; SK Energy Americas, Inc.; SK Trading International Co., Ltd.*
Superior Court of the State of California for the County of San Francisco
Case No. CGC-20-584456
Role: Deposition (April 25, 2023)
- *Jeffrey Koenig, on behalf of himself and all others similarly situated, vs. Vizio, Inc.*
Superior Court of the State of California for the County of Los Angeles
Case No. BC702266
Role: Deposition (December 14, 2021)
- *Economic Regulation Authority v. Electricity Generation and Retail Corporation (t/a Synergy)*
Western Australia Electricity Review Board
Application 1/2019
Role: Expert Testimony (May 13, 2021)

Appendix B Materials Considered

Expert Reports and Legal Documents

- Anibal Rodriguez, Sal Cataldo, Julian Santiago, and Susan Lynn Harvey, individually and on behalf of all other similarly situated, v. Google, LLC, Fourth Amended Complaint, 3:20-cv-04688-RS, January 4, 2023.
- Anibal Rodriguez and Julie Anna Muniz, individually and on behalf of all other similarly situated, vs. Google LLC, et al., Defendant Google LLC's Fourth Supplemental Responses and Objections to Plaintiffs' Interrogatories, Set One, 3:20-cv-04688, November 5, 2021.
- Anibal Rodriguez and Julie Anna Muniz, individually and on behalf of all other similarly situated, vs. Google LLC, et al., Defendant Google LLC's Second Supplemental Responses and Objections to Plaintiffs' Interrogatories, Set Two, 3:20-cv-04688, August 16, 2021.
- Anibal Rodriguez and Julie Anna Muniz, individually and on behalf of all other similarly situated, vs. Google LLC, et al., Defendant Google LLC's Second Supplemental Responses and Objections to Plaintiffs' Interrogatories, Set Three, 3:20-cv-04688, October 31, 2022.
- Anibal Rodriguez and Julie Anna Muniz, individually and on behalf of all other similarly situated, vs. Google LLC, et al., Defendant Google LLC's Responses to Plaintiffs' Interrogatories, Set Four, 3:20-cv-04688, July 21, 2021.
- Anibal Rodriguez and Julie Anna Muniz, individually and on behalf of all other similarly situated, vs. Google LLC, et al., Defendant Google LLC's Objections to Plaintiffs' Interrogatories, Set Five, 3:20-cv-04688, October 25, 2021.
- Anibal Rodriguez and Julie Anna Muniz, individually and on behalf of all other similarly situated, vs. Google LLC, et al., Defendant Google LLC's Second Supplemental Objections and Responses to Plaintiffs' Interrogatories, Set Six, 3:20-cv-04688, February 14, 2023.
- Anibal Rodriguez and Julie Anna Muniz, individually and on behalf of all other similarly situated, vs. Google LLC, et al., Defendant Google LLC's Objections and Responses to Plaintiffs' Interrogatories, Set Seven, 3:20-cv-04688, October 31, 2022.
- Expert Rebuttal Report of Anindya Ghose, Ph.D., May 31, 2023.
- Expert Report of Donna L. Hoffman, May 31, 2023.
- Expert Report of Jonathan E. Hochman, March 22, 2023.
- Expert Report of Michael J. Lasinski, and materials considered, February 20, 2023.

Depositions

- Deposition of Anibal Rodriguez, October 16, 2022.
- Deposition of Arne De Booij, February 7, 2023.
- Deposition of Belinda Langner, December 15, 2022.
- Deposition of Christopher Ruemmler, September 9, 2022.
- Deposition of Daniel Stone, November 15, 2022.
- Deposition of David Monsees, September 15, 2022.
- Deposition of Edward Weng, September 23, 2022.
- Deposition of Eric Miraglia, October 25, 2022.
- Deposition of Francis Ma, October 28, 2022.
- Deposition of Greg Fair, October 3, 2022.
- Deposition of Julian Santiago, March 7, 2022.
- Deposition of Rahul Oak, November 18, 2022.
- Deposition of Sal Cataldo, February 17, 2022.
- Deposition of Sam Heft-Luthy, February 8, 2023.
- Deposition of Steve Ganem, October 28, 2022.
- Deposition of Susan Harvey, October 29, 2022.
- Deposition of Xinyu Ye, February 9, 2023.

Appendix B Materials Considered

Bates Stamped Documents

- GOOG-RDGZ-00030019–023.
- GOOG-RDGZ-00046896–933.
- GOOG-RDGZ-00056108–129.
- GOOG-RDGZ-00056514–531.
- GOOG-RDGZ-00067439–474.
- GOOG-RDGZ-00072319–365.
- GOOG-RDGZ-00118124–129.
- GOOG-RDGZ-00177709–741.
- GOOG-RDGZ-00184247.
- GOOG-RDGZ-00185744.
- GOOG-RDGZ-00187010.
- GOOG-RDGZ-00187249–303.
- GOOG-RDGZ-00187331–571.
- GOOG-RDGZ-00187623.
- GOOG-RDGZ-00187665.
- GOOG-RDGZ-00187666.
- GOOG-RDGZ-00188469–491.
- GOOG-RDGZ-00188655.
- GOOG-RDGZ-00188768.
- GOOG-RDGZ-00196222–259.
- GOOG-RDGZ-00199151–191.
- GOOG-RDGZ-00202698–713.
- GOOG-RDGZ-00204475.
- GOOG-RDGZ-00204559–589.

Academic Literature

- Allen, Mark A., Robert E. Hall, and Victoria A. Lazear, “Reference Guide on Estimation of Economic Damages,” Reference Manual on Scientific Evidence, Third Edition, 2011, pp. 425–502.
- Goldfarb, Avi, and Catherine E. Tucker, “Privacy Regulation and Online Advertising,” *Management Science*, Vol. 57, No. 1, 2011, pp. 57–71.
- Hubbard, Glenn R., and Anthony Patrick O’Brien, “Microeconomics,” Seventh Edition, Pearson, 2019.
- Johnson, Garrett A., Scott K. Shriver, and Shaoyin Du, “Consumer privacy choice in online advertising: Who opts out and at what cost to industry?,” *Marketing Science*, 2020, Vol. 39, Issue 1, 33–51.

Publicly Available Documents

- “About App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6247380?hl=en>.
- “About attribution models,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6259715?hl=en>.
- “About attribution sharing for App campaigns,” Google Ads Help, available at <https://support.google.com/google-ads/answer/9996103?hl=en>.
- “About automated bidding,” Google Ads Help, available at <https://support.google.com/google-ads/answer/2979071?hl=en>.
- “About conversion tracking,” Google Ads Help, available at <https://support.google.com/google-ads/answer/1722022>.

Appendix B Materials Considered

Publicly Available Documents (Cont'd)

- “About Display ads and the Google Display Network,” Google Ads Help, available at <https://support.google.com/google-ads/answer/2404190?hl=en>.
- “About mobile app conversion tracking,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6100665>.
- “About mobile app install ads,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6357635>.
- “About modeled online conversions,” Google Ads Help, available at <https://support.google.com/google-ads/answer/10081327?hl=en>.
- “About the Google Search Network,” Google Ads Help, available at <https://support.google.com/google-ads/answer/1722047>.
- “About tracking app conversions with an App Attribution Partner,” Google Ads Help, available at <https://support.google.com/google-ads/answer/12961402?hl=en>.
- “Ad Revenue: What Is and How to Increase it?,” CodeFuel, June 29, 2021, available at <https://www.codefuel.com/blog/ad-revenue/>.
- “Advertising with Google Ad Manager,” Google Ad Manager Help, available at <https://support.google.com/admanager/answer/6022000?hl=en>.
- “Automated bid strategy: Definition,” Google Ads Help, available at <https://support.google.com/google-ads/answer/6325042?hl=en>.
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